

[54] **DOOR-BARRING LOCK APPARATUS**

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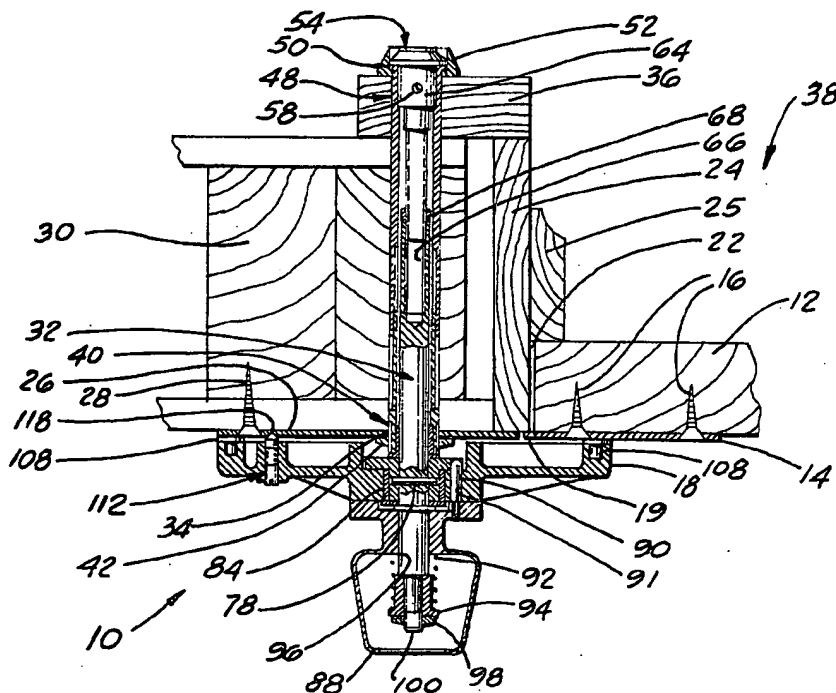
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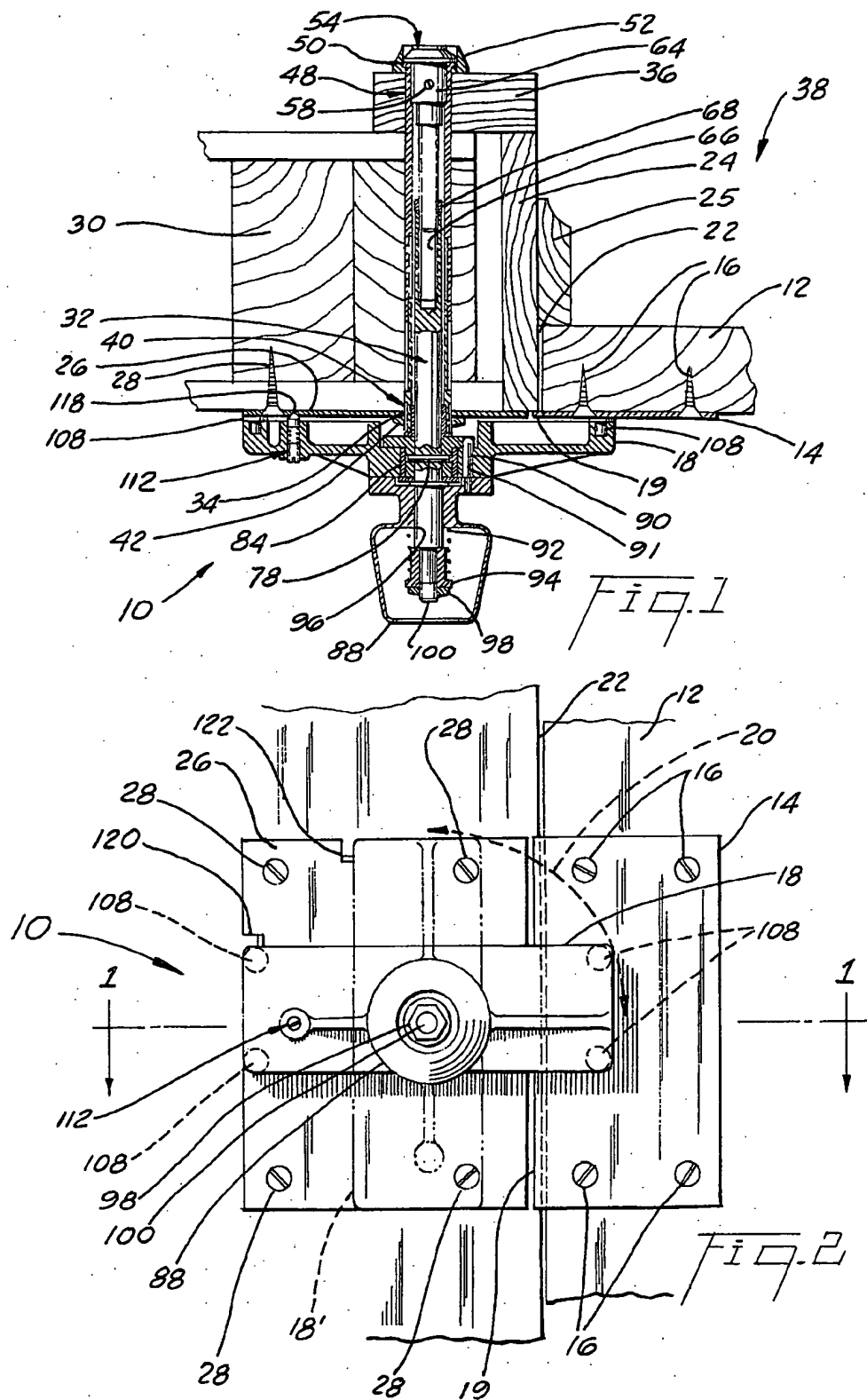
Primary Examiner—Robert L. Wolfe
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[57] **ABSTRACT**

Door-barring lock apparatus has a bar member rotatably mounted to the wall near the doorway. When in a transverse or generally horizontal position, this bar member projects into the doorway for engaging the inside of the door near the opposite margin from the hinges for advantageously, positively barring the door against opening inwardly. By manipulation of a handle located inside of the building near the bar member, a person inside of the building can de-couple the bar from a locking rod extending through the wall to the outside of the building. Such de-coupling enables the person inside of the building to rotate the bar into an upright position for freeing the door to allow the door to be opened, regardless of whether this rod is locked against rotation. A lock assembly accessible from the outside of the building normally serves to lock the rod against rotation for normally locking the bar member in its transverse door-barring position. By unlocking this lock assembly and turning the lock, the rod becomes rotated for rotating the bar member from its transverse to its upright position for allowing a person outside of the building to open the door, or conversely to rotate the bar member from its upright to its transverse position for barring the door from the outside.

16 Claims, 6 Drawing Figures





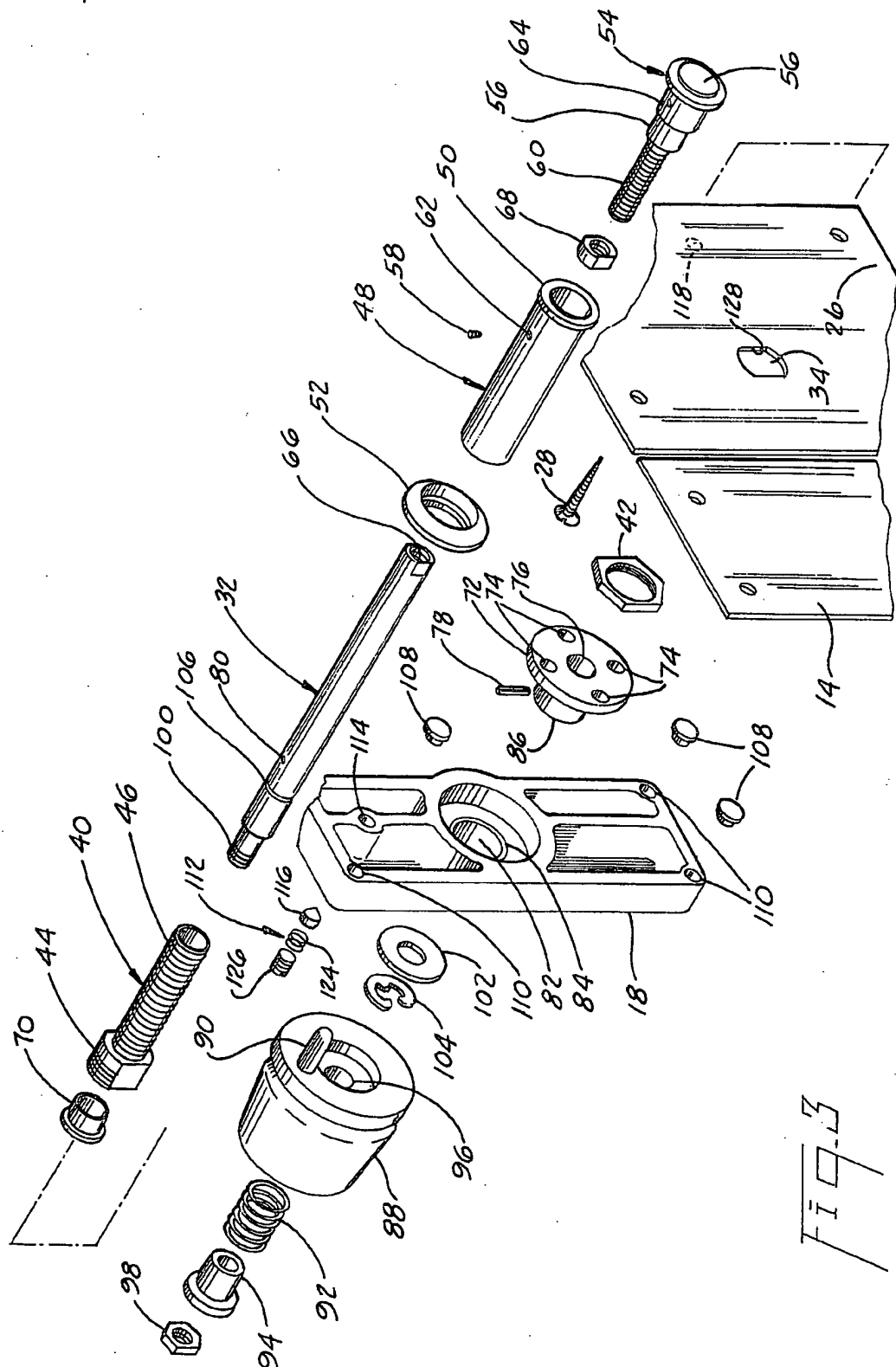
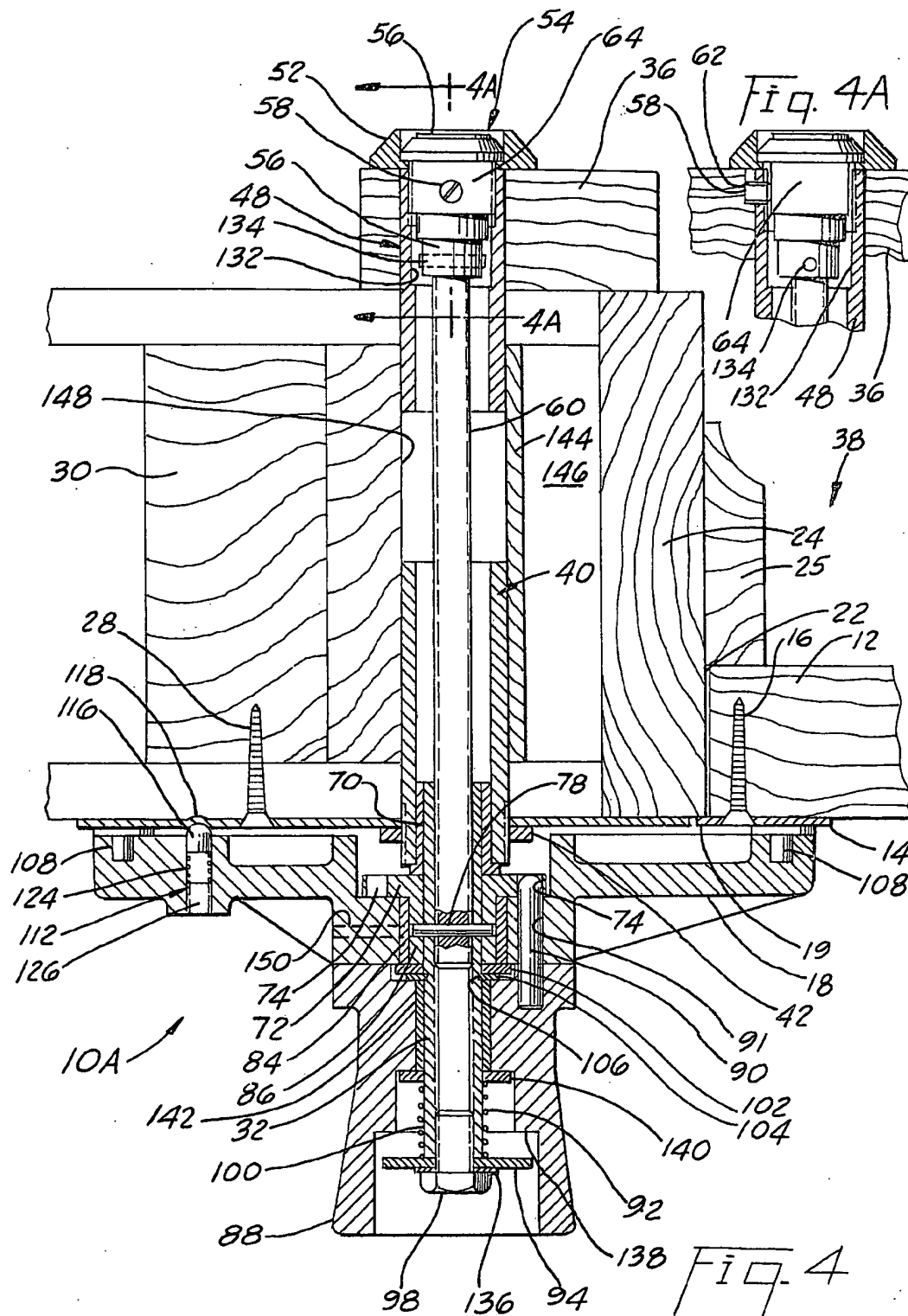
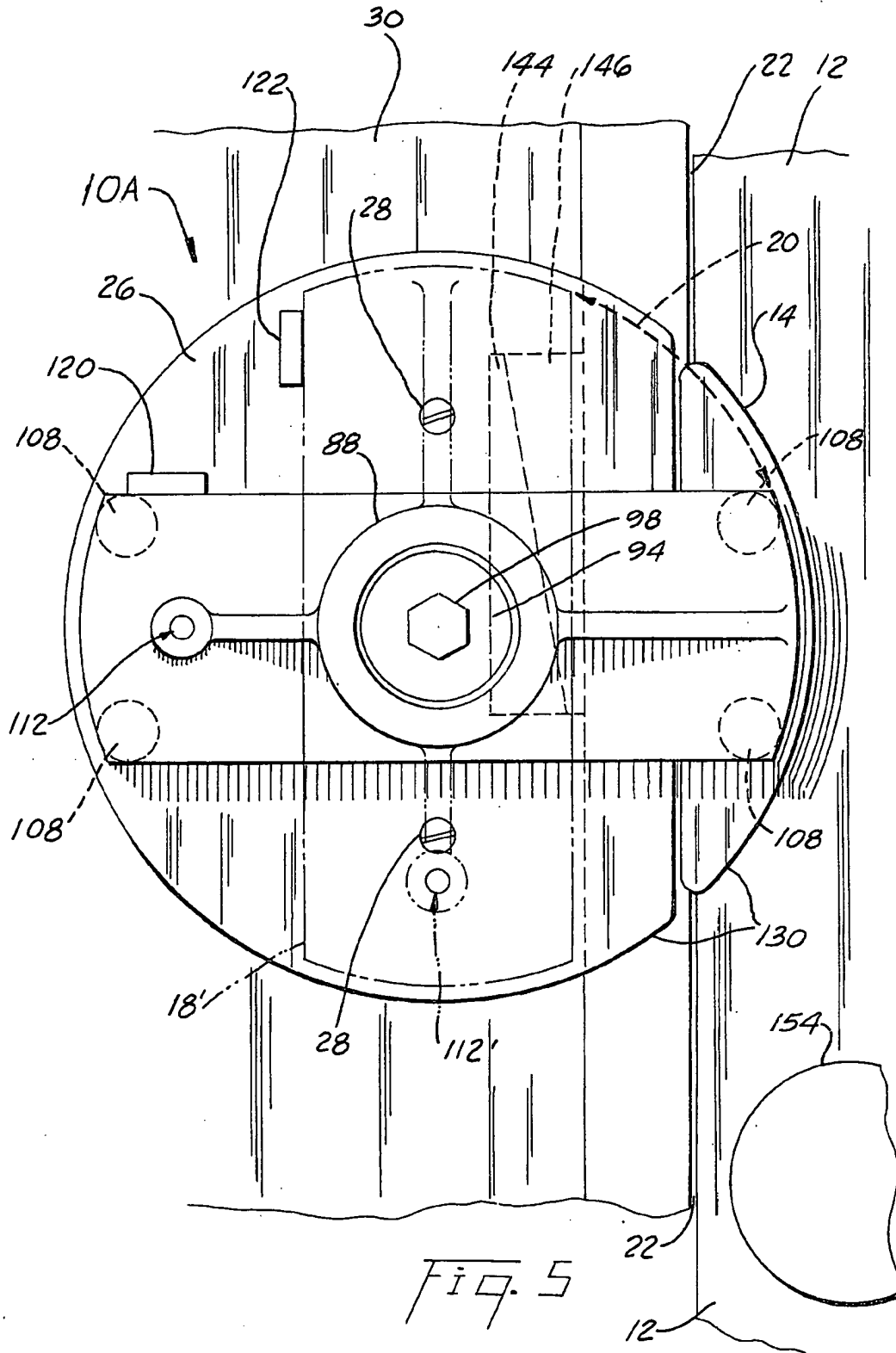


FIG. 3





DOOR-BARRING LOCK APPARATUS

FIELD OF THE INVENTION

This invention is in the field of door locks and more particularly relates to door-barring lock apparatus in which a bar member rotatably mounted to the wall near the doorway in its locked position projects into the doorway for engaging the inside of the door near the opposite margin from the hinges for advantageously, positively barring the door and in its upright position frees the door for opening.

BACKGROUND OF THE INVENTION

In the customary installation an entrance door is hinged in a doorway and swings inwardly when the door is unlocked. The doorway is defined by a frame mounted in the wall of the building. The vertical portion of the frame near the edge of the door is known as the jamb. The locking mechanism for the door is usually mounted on the door and includes a bolt which engages in a socket in the jamb for locking the door.

A burglar intent upon breaking and entering the building can often forcefully kick against the door near the lock. The result of such a powerful inward thrust against the margin of the door is often to tear the lock mechanism away from its mounting on the door or to tear the bolt through the socket in the jamb or partially to tear both lock mounting and bolt socket sufficiently that the entrance door is allowed to swing inwardly to admit the burglar.

If the burglar is concerned about detection resulting from the crashing, bursting sound resulting from the first approach, a second approach is to pry the margin of the door and the jamb away from each other sufficiently far that the end of the bolt barely clears the socket in the jamb for allowing the door to swing inwardly. There are portable, battery-operated electric drills which are relatively quiet in operation. The burglar drills a hole through the doorstep at the very edge of the door immediately adjacent to the jamb on the opposite side from the hinges. The end of a prying tool is inserted into this hole between the jamb and the edge of the door. The prying tool provides a tremendous mechanical advantage through which the burglar can force the edge of the door and the jamb sufficiently far apart that the bolt no longer reaches into the socket. The door can now be swung open almost noiselessly.

SUMMARY OF THE INVENTION

The present invention overcomes these problems with conventional door locks by advantageously, positively barring the door for preventing the door from opening even if an attempt is made to force entry by prying the jamb and door away from each other.

In accordance with the presently preferred embodiments of this invention, the door-barring lock apparatus includes an elongated rotatable rod extending through the wall of the building near the doorway on the opposite side of the doorway from the location of the hinges for the door. This rod extends through the wall from the inside to the outside of the building, and anchor means associated with this rod are secured to the wall. This rod is rotatable about its own axis relative to said anchor means. There is a lock available from the outside of the building near the doorway having a rotatable lock plug which can be in a locked condition and in an unlocked condition. When this lock plug is in its locked condition, it prevents the rod from rotating relative to the anchor means. This lock plug in its unlocked condi-

tion enables the rod to be rotated by said lock plug. There is a rotatable door bar member mounted on the inside of the wall near the doorway which in its transverse position engages the inside of the door on the opposite side from the hinges for barring the door against opening inwardly, and which in its upright position is located away from the door for unbarring the door for allowing the door to be opened. Coupling means normally couples this bar member to the inner end of the rod for enabling the door to be barred or unbarred from the outside by use of the lock. A handle is associated with the coupling means for de-coupling the bar member from the rod for permitting the bar member to be turned between its transverse and upright positions by a person inside of the building, regardless of the fact that the lock plug is in its locked condition, for enabling the door to be barred or unbarred from the inside of the building by manipulation of the handle.

BRIEF DESCRIPTION

The various aspects, objects, features and advantages of the door-barring lock apparatus of the present invention will become more fully understood from a consideration of the accompanying drawings in conjunction with the following description setting forth two embodiments of this invention in the best mode I now know for putting this invention into practice. In these drawings, the same reference numerals indicate like parts throughout the various views.

FIG. 1 is a sectional view taken along the plane 1—1 in FIG. 2, as seen looking downwardly, showing the door-barring lock apparatus in position for barring the door against opening. The margin of the door and the wall of the building, including the door frame or jamb near the doorway and the lock apparatus, are seen in section, with the bar-controlling handle being located on the inside of the building.

FIG. 2 is a front elevational view, as seen looking toward the lock apparatus from inside the building, the bar member is shown in its transverse (generally horizontal) position for barring the door. The upright position of the bar member shown in dash-and-dotted outline frees the door for opening inwardly.

FIG. 3 is an exploded perspective view showing the components of the door-barring lock apparatus of FIGS. 1 and 2.

FIG. 4 is a sectional view taken along the plane 4—4 in FIG. 5 illustrating a second embodiment of the invention. FIG. 4 is a view similar to FIG. 1, but FIG. 4 is drawn in a larger size. The embodiment of FIG. 4 provides a different way from FIGS. 1-3 for accommodating for different wall thicknesses.

FIG. 4A is a partial sectional view taken along the plane 4A—4A in FIG. 4 showing the lock assembly anchored against rotation in the building structure.

FIG. 5 is a front view of the door-barring lock apparatus of FIG. 4 as seen looking from inside the building

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

Inviting attention to FIGS. 1 and 2, there is shown a door-barring lock apparatus 10 embodying the present invention. The margin portion of the door 12 on the inside of the door in a location opposite to the hinges is covered by an attractive door plate 14 which is suitably secured to the door 12 by attachment means 16, for example, such as screws. This door plate may be rectan-

gular as shown or rounded, or partial-circular in outline. Its purpose is to cover the inside surface of the door in the area which is swept over by the lockable, rotatable bar member 18, including the arc of travel 20 of the end of this bar member 18. It is noted that the edge 19 of this door plate 14 advantageously extends beyond the margin of the door and overlaps the clearance space 22 between the door 12 and the upright frame or jamb 24 of the building structure adjacent to the doorway. Therefore, anyone attempting to tamper with the door bar member 18 by inserting a thin implement through the clearance space 22 from the outside of the building is prevented from access by the overlapping edge 19 of the door plate. The doorstop secured to the jamb 24 is shown at 25.

On the inside wall surface adjacent to the door opening and aligned with the door plate 14, there is a wall plate 26 which is secured to the building structure by suitable fastening means, such as relatively large screws 28. This wall plate 26 may be rectangular in outline or may be rounded. It is my preference that this plate 26 cover the inside wall surface in the entire area where the bar member 18 is located and can be rotated.

The door bar member 18 is rotatably mounted to the wall structure 30 of the building by mounting means including a rotatable rod 32 (See also FIG. 3) extending through the wall structure near the adjacent portion of the doorway as defined by the jamb 24. This rod 32 extends through an opening 34 in the wall plate 26 and through the wall structure 30 and through the trim 36 on the outside of the building by the doorway 38.

The rotatable rod 32 is surrounded by a sleeve 40 (See also FIG. 3) extending through the wall plate opening 34 and secured in position by a fastening ring nut 42. This ring nut 42 engages the enlarged externally threaded end 44 of the sleeve 40, which includes flat surfaces, as shown in FIG. 3, for tightening this sleeve 40 in position according to the thickness of the wall structure 30, as will be explained later. The sleeve 40 has an externally threaded end 46 of reduced diameter which screws into a second sleeve 48 with an external flange 50 seating in an external retainer ring 52 which rests flush against the trim 36. Thus, the sleeves 40 and 48 when screwed together form a continuous sleeve surrounding the rotatable rod 32.

In order to lock and unlock the rotatable rod 32 there is a lock assembly 54 having a rotatable lockable plug 56 attached to a rod-like extension 60. The lock assembly 54 has an external shoulder which neatly fits into a recess in the ring 52 as seen in FIG. 1 and seats against the flange 50 of the sleeve 48. A set screw 58 threaded through a hole 62 in the second sleeve 48 holds anchors the casing 64 of the lock assembly 54 fixed in position relative to this sleeve 48. The rod-like extension 60 of the lock plug 56 is threaded into the bore 66 of the rod 32 and is secured thereto by a lock nut 68.

When the lock 54 is unlocked, the plug 56 can be rotated by the key (not shown) relative to the lock casing 64. Thus, the extension 60 and the rod 32 can be turned by the key when the lock is unlocked. In order to permit the inner end of the rod 32 to turn freely within the sleeve 40, there is a flanged bushing 70 seated in the enlarged inner end 44 of the sleeve 40.

For coupling the bar member 18 to the rod 32, there is a latch collar 72 containing multiple sockets 74, four of such sockets being shown in FIG. 3. This latch collar 72 has a bore 76 fitting snugly onto the rod 32, and the

latch collar is rigidly fixed in position on the rod 32 by a pin 78 engaging in a hole 80 in the rod 32.

The bar member 18 has a bore 82 containing a bushing 84 which is rotatably mounted on the cylindrical boss 86 of the latch collar 72.

There is a handle 88 for de-coupling the bar member 18 from the latch collar 72 to enable a person inside the building to turn the bar member 18 into its upright position at 18' (FIG. 2) for unbarring the door. Therefore, the door can be opened from the inside by manipulating the handle 88 regardless of whether the lock assembly 54 is locked. This handle 88 includes a latch pin 90 extending through a passageway 91 (FIG. 1) in the bar member and normally engaging in one of the sockets 74. A compression spring 92 held by a spring holder bushing 94 presses the handle 88 toward the latch collar 72. The bore 96 of the handle 88 is slidably mounted on the rod 32, and a lock nut 98 screwed onto the threaded inner end 100 of the rod 32 fastens the spring-holding bushing 94 fixed in position on the rod 32. A washer 102 held by a C-shaped fastener 104 engaging in a groove 106 in the rod 32 prevents the bar member 18 and its bushing 84 from sliding off from the cylindrical boss 86 of the latch collar 72, while the bar member can freely rotate relative to the latch collar 72 when the latch pin 90 is withdrawn from a socket 74. This washer 102 and fastener 104 thus hold the bar member 18 for preventing the bar member from moving inwardly relative to the rod 32.

The spring 92 normally urges the handle 88 toward the latch collar 72 for engaging the pin 90 in a socket 74. When the user pulls on the handle 88, the handle slides on the rod 32 while compressing the spring 92 for withdrawing the pin 90 from a socket 74, thereby freeing the bar member 18 to be turned by the handle 88 into the transverse door-barring position or into the upright position 18' (FIG. 2) for freeing the door to be opened.

The bar member 18 includes multiple slide pads 108 of slippery plastic mounted in recesses 110 in the face of the bar member 18 facing the plates 14 and 26. Also, there is a spring-biased detent assembly 112 mounted in a hole 114 in the bar member 18. The tip of the detent element 116 engages in a small depression 118 (FIG. 1) in the wall plate 26 when the bar member is turned into its door-barring position. This detent assembly includes a compression spring 124 and a set screw 126 which screws into the threaded hole 114.

There is a second similar depression (not shown) in the wall plate 26 which is engaged by the detent element 116 when the bar member 18 is turned into its upright position 18'. The purpose of this detent assembly 112 and the two depressions 118 in the wall plate 26 is to assure that the bar member 18 remains exactly in its upright unbarred position 18' or exactly in its transverse door-barring position.

In order to limit the rotation movement of the bar member 18 to the desired arc of travel 20, the wall plate 26 includes first and second stops 120 and 122 projecting inwardly from its surface. The first stop 120 is contacted by the bar member 18 when turned into the transverse door-barring position, as shown in FIG. 2. The second stop 122 is contacted by the bar member when turned into its unbarring upright position. These two positions are oriented 90° from each other in this embodiment.

The reason why there are four sockets 74 spaced 90° apart around the axis of the latch collar 72 will now be explained. Assume that a person bars the door by insert-

ing a key into the lock plug 56 and then turns the shaft 32, latch collar 72, together with the bar member 18, for placing the bar member into its transverse position. Then, assume that the door is unbarred from inside of the door by pulling on the handle 88 for disengaging the pin 90 from a socket 74, and by then turning the handle together with the bar member counterclockwise. The result is that the pin 90 now becomes engaged in a socket 74 which is located 90° counterclockwise from the original socket.

Assume that once again a person bars the door by locking it from the outside, and then the door is unbarred by a person again turning the handle 88 counterclockwise. The result is that the pin 90 now becomes engaged in a socket 74 which is located 180° counterclockwise from the original socket. And so forth, each sequence of locking (barring) from outside of the building and unlocking (unbarring) from inside of the building will advance the pin 90 counterclockwise by 90° to the next successive socket 74.

Conversely, each sequence of barring from the inside and then unbarring by using the lock plug 56 and a key on the outside will advance the pin 90 clockwise by 90° to the next successive socket.

In view of the fact that the angular difference between the transverse and upright positions of the bar member is 90°, it will now be understood that four sockets 74, as shown, will allow unlimited repeated sequences of outside/inside locking and unlocking, respectively, and also will allow unlimited repeated sequences of inside/outside locking and unlocking, respectively.

It is to be understood that the lock 54 is of a type in which the plug 56 can be turned in either direction when unlocked by insertion of a key and in which the plug 56 locks at angular increments of 90°, i.e. at four equally spaced angular positions. A suitable commercially available lock 56 is, for example a double-bitted lock Model No. 2625 made by Chicago Lock Co. of Belmont Avenue, Chicago, Ill., which includes the extension 60. Another suitable lock is, for example their seven-pin tumbler Model 4107, which was a tubular-type key.

Although my presently preferred angular difference between upright and transverse positions of the bar member 18 is four equal increments of 90°, it is to be understood that this door-barring lock apparatus can be arranged to employ other multiples of equal angular increments, for example five equal increments of 72° or six equal increments of 60°, in which event there are five or six, respectively, equally spaced sockets 74 in the latch collar 72. The rotation limit stops 120 and 122 (FIG. 2) and the detent depressions 118 (FIGS. 1 and 3) are then appropriately positioned, for 72° or 60° arc of travel, as the case may be. The lock plug 56 is then capable of being turned in either direction and of being locked in various angular positions of equal incremental differences of 72° or 60°, as the case may be. Also, three 120° increments can be used.

During installation of this door-barring lock apparatus 10 the installer determines the wall thickness and appropriately adjusts the effective length of the rod 32 by screwing it onto the rod-like extension 60 and then tightening the lock nut 68. The outer sleeve 48 is screwed onto the inner sleeve 40 to provide appropriate length for the flange 50 to pull the ring 52 snug against the trim 36. There is at least one flat 128 (FIG. 3) in the opening 34 in the wall plate 26 which engages a corre-

sponding flat on the enlarged end 44 of the sleeve 40 for holding this sleeve against turning relative to the other sleeve 48, while the fastening ring nut 42 is being tightened against the wall plate for anchoring the sleeves 40 and 48 firmly in position in the wall structure 30.

Inviting attention to FIGS. 4, 4A and 5, this second embodiment of the door-barring lock apparatus is generally indicated at 10A and has numerous features similar to those of the apparatus 10 of FIGS. 1-3. For convenience of explanation, only the differences will now be described.

The door and wall plates 14 and 26 together have an overall circular configuration 130 giving a pleasing bulls-eye motif to the apparatus, as seen in FIG. 5, from inside the building. The ends of the bar member 18 are rounded to be concentric with this circular configuration 130, and its arc of travel 20 is concentric therewith.

The outer or second sleeve 48 is internally threaded at its outer end at 132 to receive the externally threaded casing 64 of the lock 54 which is secured in place by a set screw 58 threaded into the opening 62 in the sleeve 48. This set screw 58 is intentionally allowed to protrude beyond the sleeve 48, as shown in FIG. 4A, for anchoring the sleeve 48 in the wall structure or trim to prevent turning of this sleeve. It is noted that the fastening ring 52 includes a recess with an internal shoulder, and the lock casing 64 includes an external shoulder which seats directly down into the ring 52 against the internal shoulder of this ring.

The rod-like element 60 is fastened to the lock plug 56 by a pin 134 and is relatively long.

The first or inner sleeve 40 includes a bushing 70 as shown in FIGS. 1 and 3, but the inner end of this sleeve 40 is not enlarged. The fastening nut 42 screws onto the exterior threading at the inner end of this inner sleeve 40.

Instead of the rod 32 (FIGS. 1 and 3), the rod-like element 60 of the lock plug 56 is attached to a tubular member 32 which is internally threaded along its whole length and effectively lengthens this rod element 60. This tubular rod extender 32 is used to accommodate different wall thicknesses as will be explained later. The inner end 100 of the tubular rod extender 32 receives a machine screw 98 which, together with a lock washer 136, serve the same function as the lock nut 98 (FIGS. 1 and 3), namely, to hold an element 94 which in turn holds the compression spring 92. The spring-holding element 94 in this embodiment is a washer which also acts as a limit stop for the handle 88. When the handle 88 is pulled inwardly for de-coupling its pin 90 from one of the sockets 74 in the latch collar 72, an internal shoulder 138 in the handle 88 contacts the limit stop washer 94. There is a washer 140 seated in the handle 88 for receiving the thrust of the spring 92 for preventing galling of the softer handle 88 by the harder spring 92. As will be understood, the handle 88 may be made of softer material than the spring 92, for example of brass, aluminum or plastic. There is a bushing or sleeve 142 within the handle 88 slidably fitting around the rod extender element 32. The C-shaped fastener 104 for holding the washer 102 engages in a groove 106 in the rod extender element 32.

During installation, the installer may insert a pair of wood wedges 144, 146 between the door frame 24 (jamb) and the wall studs of the wall structure 30 for assuring that the hole 148 to be drilled through the wall structure for receiving the door-barring lock apparatus 10A will run true, i.e. will not deflect toward the door

frame 24. The appropriate length of the rod 60 is determined in accordance with the wall thickness. If this rod 60 is too long, it may be cut off, but usually it will not be too long, because the tubular rod extender 32 accommodates a substantial range of adjustments for various wall thicknesses.

The apparatus 10A is assembled, except that the pin 78 is not yet installed. The nut 42 is screwed into a position for locating the bushing 70 so that the slide pads 108 are spaced away from the wall plate by the thickness of a sheet of newspaper. There is a drill guide hole 150 provided in the bar member 18. Using a drill guided by the guide hole 150, a hole is then drilled through the bushing 84 through the cylindrical portion 86 of the latch collar 72, through the tubular rod extender element 32 and through the rod 60, so that a tight-fitting pin 78 can be inserted for permanently securing the tubular rod extender 32 to the rod 60 in its appropriate adjusted position on the rod and for securing the latch collar 72 permanently fixed in position on the assembled rod 32-60. The last assembly step is tightening the spring holder element 98 against the lock washer 136.

During assembly, the nut 42 is turned slightly to provide slight clearance between the bushing 70 and the latch collar 72 when the slide pads 108 of the bar member 80 are in contact with the wall plate 26 for achieving free rotation of the bar member 18.

It is to be understood that the door 12 in each embodiment includes a hand hold or handle on the inside for enabling the door to be swung inwardly. There is also such a hand hold or handle on the outside for pulling the door closed. Such a handle 154 is shown on the inside of the door in FIG. 5.

The lock plug 56 is unlocked from its casing as soon as the proper key is fully inserted into the plug 56 in a keyhole (not shown). Thus, the lock 54 itself is said to be "unlocked" by full insertion of the proper key. Thereafter, the rod 60-32 can be turned by turning the plug 56 by use of the key as a handle.

While the novel features of the invention have been illustrated and described in connection with specific embodiments of the invention, it is believed that these embodiments will enable others skilled in the art to apply the principles of the invention in forms departing from the exemplary embodiments herein, and such departures are contemplated by the following claims.

I claim:

1. Door-barring lock apparatus for holding an inwardly-swinging hinged door in its closed position in the doorway in the wall structure of a building or for releasing the door to be opened inwardly comprising:
 - an elongated rotatable rod extending through the wall structure of the building near the doorway on the opposite side of the doorway from the location of the hinges for the door,
 - said rod extending through the wall structure from the inside to the outside of the building,
 - anchor means secured to the wall structure for preventing rotation,
 - said rod normally being rotatable about its own axis relative to said anchor means,
 - a lock available from the outside of the building near said doorway,
 - said lock having a rotatable portion coupled to said rod,
 - said lock having a stationary portion anchored in position by said anchor means,

said lock having a locked condition and an unlocked condition,
 said lock in its locked condition preventing said rod from rotating relative to said anchor means,
 said lock in its unlocked condition permitting said rod to be rotated,

a door bar member movably mounted near the inside surface of the wall structure and being movable between extended and retracted positions,
 said bar member when in its extended position engaging the inside surface of the door on the opposite side from the hinges for barring the door against opening inwardly,

said bar member in its retracted position being located away from the door for unbarring the door and for allowing the door to be opened inwardly,
 coupling means normally coupling said bar member to the inner end of said rotatable rod for enabling the door to be barred or unbarred from the outside by unlocking said lock and then turning the rod, and

a handle near said bar member associated with said coupling means for decoupling said bar member from said rod for permitting said bar member to be moved between its extended and retracted positions by a person inside of the building regardless of the fact that said lock is in its locked condition, for enabling the door to be barred or unbarred from the inside of the building by manipulation of said handle.

2. Door-barring lock apparatus, as claimed in claim 1, in which:

said coupling means includes means for positively defining a plurality of angular positions of said bar member relative to said rod,
 said angular positions being spaced apart by equal angular increments, and
 said coupling means being capable of coupling said bar member to said rod in each of said angular positions.

3. Door-barring lock apparatus, as claimed in claim 1, in which:

said coupling means includes a member secured to said rod defining a plurality of sockets therein spaced about the axis of said rod,
 said bar member has an associated element engageable with any one of said sockets for positively defining a plurality of angular positions of said bar member relative to said rod, and
 said sockets are spaced apart by equal angular increments around the axis of said rod.

4. Door-barring lock apparatus, as claimed in claim 3, in which:

said handle is secured to said element,
 said element is slidable relative to said bar member in a direction parallel with the axis of said rod for engaging the element with a socket and for disengaging the element from a socket,
 said element is associated with said bar member for preventing said element and bar member from changing their angular positions with respect to each other, and

spring means are provided for normally urging said element toward engagement with one of the sockets defined by said member.

5. Door-barring lock apparatus, as claimed in claim 4, in which:

said handle is mounted on said rod,

said handle is slidable axially relative to said rod and is rotatable about said rod, said spring means also being mounted on said rod, and holding means are provided for holding one end of said spring means in predetermined axial position relative to said rod with the other end of said spring means urging said handle toward said socket-defining member.

6. Door-barring lock apparatus, as claimed in claim 4, in which:

said element is a pin,

said bar member has a passageway therethrough offset from the axis of said rod and aligned with said pin,

said pin extends through said passageway and is slidable axially in said passageway, and

stop means for permitting said handle to be moved in an axial direction sufficiently far to disengage said pin from the socket-defining member while retaining the pin in said passageway for enabling the bar member to be rotated by the handle after said pin has been disengaged from the socket-defining member.

7. Door-barring lock apparatus, as claimed in claim 5, in which:

said element is a pin secured to the handle in a position offset from the axis of said rod,

said pin extends axially parallel with the axis of said rod,

said bar member has a passageway therethrough offset from the axis of said rod and aligned with said pin,

said pin extends through said passageway and is slidable axially in said passageway, and

stop means for permitting said handle to be moved in an axial direction sufficiently far to disengage said pin from the socket-defining member while retaining the pin in said passageway for enabling the bar member to be rotated by the handle after said pin has been disengaged from the socket-defining member.

8. Door-barring lock apparatus, as claimed in claim 2, 3, 4, 5 or 6, in which:

said plurality of angular positions are in the range from 3 to 6, inclusive, and

said equal angular increments are increments of 120°, 90°, 72° or 60°, respectively.

9. Door-barring lock apparatus, as claimed in claim 8, in which:

a wall plate is mounted on the wall,

said wall plate has an opening therein,

said rod extends through said opening, and

said wall plate has stop means for limiting the arc of travel of said bar member to the respective angular increment.

10. Door-barring lock apparatus, as claimed in claim 9, in which:

a door plate is mounted on the inside of the door in a position for being contacted by said bar member in its extended position.

11. Door-barring lock apparatus, as claimed in claim 10, in which:

the wall plate plus the door plate as seen from inside the building when the door is closed define a circular peripheral configuration with the rod, the handle and the respective ends of the bar member being concentric with said peripheral configuration.

12. Door-barring lock apparatus for holding an inwardly-swinging hinged door in its closed position in the doorway in the wall structure of a building or for releasing the door to be opened comprising:

an elongated rotatable rod extending through the wall structure of the building near the doorway on the opposite side of the doorway from the location of the hinges for the door,

said rod extending through the wall from the inside to the outside of the building,

anchor means secured to the wall structure,

said rod being rotatable about its own axis relative to said anchor means,

a lock operatively associated with said anchors means and being available from the outside of the building near said doorway

said lock being connected to said rod,

said lock having a locked condition and an unlocked condition,

said lock in its locked condition connecting said rotatable rod to said anchor means for preventing said rod from rotating relative to said anchor means, said lock in its unlocked condition permitting said rod to be rotated,

a door bar member mounted near the inside surface of said wall structure and being rotatable about the axis of said rod into transverse and upright positions,

said bar member when in its transverse position engaging the inside of the door on the opposite side from the hinges for barring the door against opening inwardly,

said bar member in its upright position being located away from the door for unbarring the door for allowing the door to be opened,

a first position-defining member secured to said rod in fixed angular position relative to said rod,

said bar member having a second position-defining member associated therewith in fixed angular position relative to said bar member,

one of said position-defining members having a plurality of elements at least three in number spaced about the axis of said rod by equal angular increments,

each of said angular increments being equal to the angular difference between the transverse and upright positions of said bar member,

said first and second position-defining members being mechanically engageable in coupled relationship in a plurality of relative angular positions as defined by said plurality of elements for enabling said bar member to be coupled to said rod with said rod at a plurality of angular positions at least three in number relative to said bar member, and

a handle inside the building associated with one of said position-defining members for de-coupling said bar member from said rod for permitting said bar member to be turned between its transverse and upright positions by a person inside of the building regardless of the fact that said lock is in its locked condition, for enabling the door to be barred or unbarred from the inside of the building by manipulation of said handle independently of whether the lock is in its locked or unlocked condition,

said first and second position-defining members thereby advantageously enabling said door-barring lock apparatus to be operated in any repetitive bar-

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ring/unbarring sequence from inside or outside of the building in any order.

13. Door-barring lock apparatus, as claimed in claim 12, in which:

spring means are provided for normally urging said first and second position-defining members toward each other into their coupled relationship, and manipulation of said handle overcomes the spring action for enabling decoupling of the bar member from the rod.

14. Door-barring lock apparatus, as claimed in claim 12, in which:

said first position-defining member contains said plurality of elements.

15. Door-barring lock apparatus, as claimed in claim 12, 13, or 14 in which:

said plurality of elements in one of said position-defining members are a plurality of sockets, and the other position-defining member is an element engageable with said sockets.

16. Door-barring lock apparatus for barring an inwardly-swinging hinged door in its closed position in the doorway in the wall structure of a building for unbarring the door to be opened inwardly comprising:

an elongated rotatable rod extending through the wall structure of the building near the doorway on the opposite side of the doorway from the location of the hinges for the door,

said rod having an inner end and an outer end relative to the inside and the outside of the building,

said rod being mounted for rotating about its own axis within said wall structure,

a lock available from the outside of the building near said doorway coupled to said outside end of said rod,

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anchor means fixed against rotation relative to the wall structure,

said lock being operatively associated with said anchor means and having a locked condition and an unlocked condition,

said lock in its locked condition preventing said rod from rotating relative to said anchor means, said lock in its unlocked condition permitting said rod to be rotated,

a door bar member movably mounted near the interior surface of said wall structure and having a first position in which said door bar extends laterally from said wall structure into a barring position relative to the door and a second position in which said door bar is removed from such door-barring position,

said bar member when in its first position engaging the inside surface of the door on the opposite side from the hinges for barring the door against opening inwardly,

said bar member in its second position being located away from the door for unbarring the door for allowing the door to be opened inwardly,

said bar member being operated by the inner end of said rod for enabling the door to be barred or unbarred from the outside by locking or unlocking said lock and then turning the rod, and

a handle associated with said bar member for permitting said bar member to be moved between its first and second positions by a person inside of the building regardless of the fact that said lock is in its locked condition, for enabling the door to be barred or unbarred from the inside of the building by manipulation of said handle.

* * * * *

[54] TAMPERPROOF DEAD BOLT DEVICE

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[21] Appl. No.: 131,454

[22] Filed: Mar. 18, 1980

[51] Int. Cl.³ E05C 1/04; E05B 63/00

[52] U.S. Cl. 292/150; 70/417

[58] Field of Search 292/145, 150, 337, 357,
292/DIG. 51; 70/417

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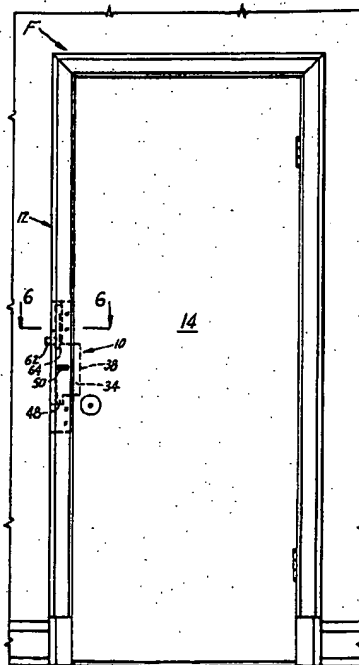
Primary Examiner—Robert L. Wolfe

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[57] ABSTRACT

A tamperproof dead bolt device secured to a door jamb is disclosed including a stationary support plate assembly provided with a slotted section for a sliding dead bolt which in the secured position projects into the plane of the arc for opening the door. The dead bolt device further includes a lock member which prevents the dead bolt from being retracted from the secured position. When the dead bolt device is installed it is secured through the door jamb and wall partition to distribute the forces of an attempted forced entry over a larger surface area.

1 Claim, 6 Drawing Figures



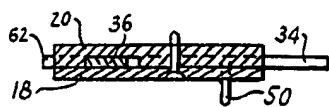


FIG. 3

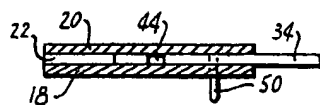


FIG. 4

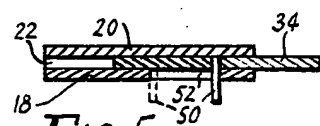


FIG. 5

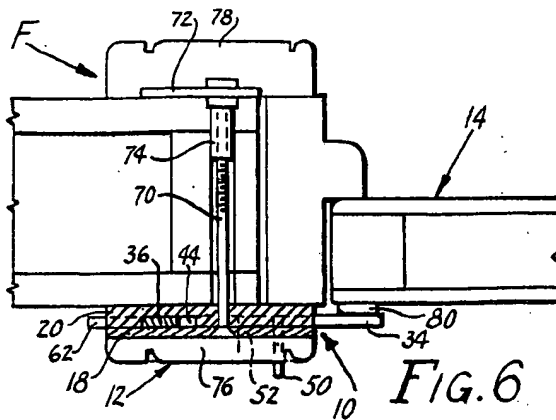


FIG. 6

FIG. 1

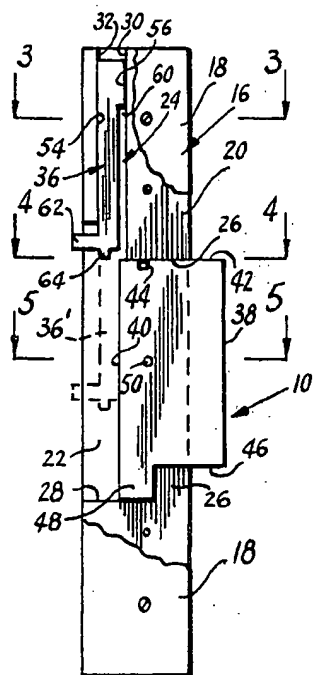
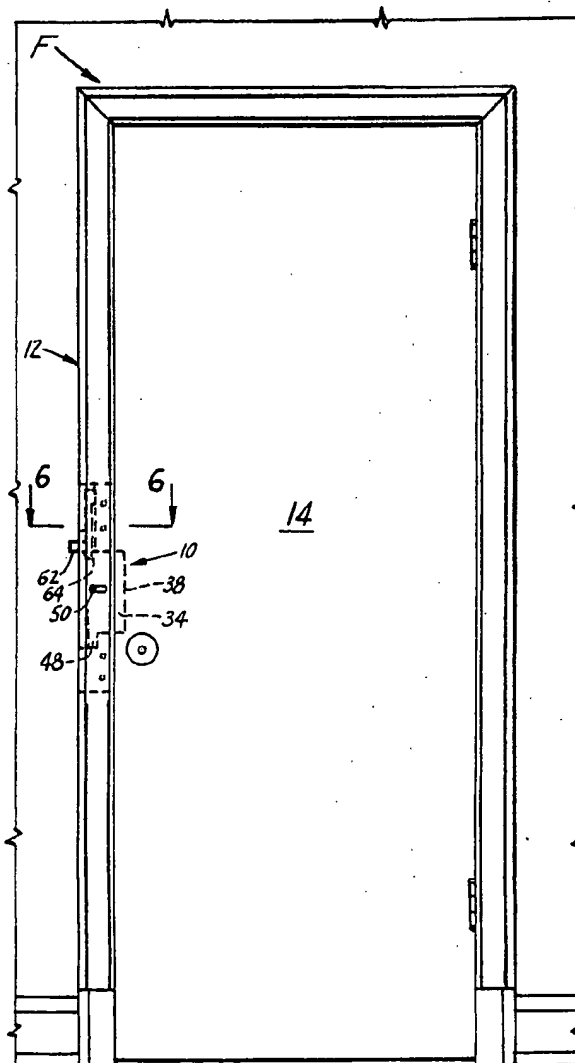


FIG. 2



TAMPERPROOF DEAD BOLT DEVICE

BACKGROUND OF THE INVENTION

Dead bolts are well known devices for securing a door against intruders. In general they include a surface mounted assembly for containing a bolt and a striker plate for receiving the bolt. A typical dead bolt is disclosed in U.S. Pat. No. 2,527,413 where the bolt is slidable within a slot in the surface mounted assembly to project into an opening in the striker plate. A similar dead bolt is disclosed in U.S. Pat. No. 2,620,213.

The problem with surface mounted dead bolts is they are mounted on the surface of a door or door jamb by wood screws which have limited gripping power. Usually four screws of less than an inch in length are employed to mount a dead bolt. It is obvious that a person could force the door by applying sufficient force against the bolt, pulling the screw out of the door.

Another type of surface mounted door securing device is disclosed in U.S. Pat. No. 3,674,297, directed to an interior door lock. The lock includes a plate mounted on a door jamb, between the edge of the door and the jamb, and a reciprocating latch which projects into the path of the door. With the door latched, the locking device is supposed to withstand attempted forced entry. This, of course, is not always true, since police reports advise that the screws are often ripped from the jamb, leaving the jamb in splinters.

In U.S. Pat. No. 3,347,581 a built-in latch for a metal door is disclosed. The latch projects through the edge of the door to engage a striker plate on a door jamb. Assuming the jamb is made of metal it would be less likely to yield to force. However, if the jamb is made of wood, the striker plate screws would subject to an applied force.

Obviously, a bolt and door and jamb combination could be built which would withstand attempted forced entry, but the cost of such a door and jamb would add substantially to already rising construction costs. It is also apparent from the rising number of break-ins that the present surface mounted dead bolts are not strong enough to prevent a determined burglar from forcing the bolt. The present invention has for its sole object to provide an inexpensive dead bolt which can be used on existing doors and in new construction.

SUMMARY OF THE INVENTION

The present invention relates to a dead bolt device having few moving parts, and, in particular, to a dead bolt device capable of preventing attempted forced entry.

In accomplishment of the foregoing features, a lock in accordance with the present invention includes a stationary support plate assembly with a slotted channel section for receiving and supporting a slidable dead bolt, and a back-up plate for preventing the support plate from being pulled or pried from its mounting on a door jamb. As stated the dead bolt is slidable in the slotted channel section, between obstructing and non-obstructing positions. There is also a latch mechanism to lock the dead bolt in the obstructing or non-obstructing positions.

Brief Description of the Drawings

FIG. 1 is a front view of a door, door jamb, and the dead bolt device of this invention.

FIG. 2 is a front view of the dead bolt device of this invention.

FIG. 3 is a cross-sectional view taken along the line 3-3 of FIG. 2.

FIG. 4 is a cross-sectional view taken along the line 4-4 of FIG. 2.

FIG. 5 is a cross-sectional view taken along the line 5-5 of FIG. 2.

FIG. 6 is a cross-sectional view taken along the line 6-6 of FIG. 1.

Preferred Embodiment

Referring now to the drawings, there is shown in FIG. 1 a dead bolt device 10, in phantom lines, mounted on a door jamb 12, and a door 14. The door 14 is viewed from the inside to show the position of the dead bolt device in the non-access or locked position. Looking at FIG. 2, the dead bolt device 10 of the present invention includes a support plate assembly 16, with a top plate 18 partially removed. A bottom plate 20 is provided having a channel section 22 and an intersecting channel section 24. The channel section 22 is defined by a wall 26 forming the top edge of the channel and a wall 28 forming the bottom edge of the channel. The wall 28 further defines an abutment 26, which will be described in detail later. The channel section 24 is defined by walls 30 and 32, where wall 32 is shorter than wall 30, the purpose of which will be explained later. Slidably supported in channel section 22 is a bolt plate 34, and slidably supported in channel 24 is a locking plate 36.

The bolt plate 34 is constructed from a flat metal sheet cut to provide a front edge 38 and a back edge 40. There is a top edge 42 with a notch 44, and a bottom edge 46. The bottom edge 46 also defines a projection 48. Secured to one side of the bolt plate 34 is a handle 50 which projects through a slot 52 (shown in FIG. 5) in top plate 18.

Referring to the locking plate 36, it includes a wall 32 engaging surface 54 and a wall 30 engaging surface 56. The wall 32 engaging surface 54 extends the length of the locking plate 36, while wall 30 engaging surface 56 only extends a short length of the locking plate, ending in a notched area 60. On the end of the locking plate 36 is hand grip 62 with a projection 64.

Considering the dead bolt device 10 further, and, in particular, the relationship of the parts. The locking plate 36 is placed in channel 24 with the end of the hand grip 62 protruding from the back of the dead bolt device 10 and the projection 64 facing channel 22. Next the bolt plate 34 is placed in channel 22 with projection 48 riding on wall 28. The top plate 18 is bolted, riveted or otherwise affixed to bottom plate 20, with handle 50 protruding through slot 52 in the top plate.

The dead bolt device 10 is assembled such that when the bolt plate 34 projects from the front edge of the support plate assembly 16 the projection 48 on the bolt plate 34 engages the abutment 26 on the bottom plate 20 to stop the bolt plate. With the bolt plate 34 in the non-access or locked position of FIG. 2, the locking plate 36 is slidable into the phantom line position 36' to prevent retraction of the bolt plate 34. It should be noted that notch area 60 of the locking plate 36 allows the locking plate to slide behind back edge 40 of the bolt plate 34, and that engagement of abutment 26 and projection 48 allow sufficient movement of the bolt plate 34 for the locking plate to move into a locking position. The locking plate 36 also locks the bolt plate 34 in the

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access or unlocked position by inserting projection 64 of the locking plate 36 in notch 44 of the bolt plate 34.

Looking at FIGS. 3, 4 and 5, the dead bolt device 10 is shown in cross-section with the bolt plate 34 in the nonaccess or locked access position.

Turning to FIG. 6, the dead bolt device 10 is shown secured to a door jamb 12. The dead bolt device 10 is mounted by drilling holes through the door frame F and placing the dead bolt device 10 on the inside of the building with supporting bolts 70 projecting through to the outside. A backup plate 72 with holes assigned to receive the ends of the bolts 70 is placed against the outside of the door frame F. The backing plate 72 may have nuts 74 welded to it, or the nuts may be applied through the holes in the backing plate. In some installations the backing plate may not be used, in which case there will be a decrease in holding force of the supporting bolts.

After the dead bolt device 10 is mounted, the door jamb molding 76 and 78 are nailed over the dead bolt device 10 and backing plate 72. The molding 76 and 78 having been routed to provide cavities to accommodate the dead bolt device 10 and the backing plate 72.

To operate the dead bolt device 10, the door 14 is shut and the bolt plate 34 is unlocked by lifting the hand grip 62 of locking plate 36. The bolt plate is slid into the nonaccess or locked position of FIGS. 2 or 6 and the locking plate 36 is moved into engagement with the back edge 40 of the bolt plate 36 to prevent it from being retracted. Should it be desired, the door 14 can be provided with a strike plate 80 to prevent the finish from being marred. Any attempted forced entry by applying force on the dead bolt will distribute the forces over a broad area of the frame F, rather than to small concentrated area.

While only one embodiment of the invention has been disclosed, it is obvious that one skilled in the art can

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modify the invention without departing from the scope of the invention, and therefore the following claims should be studied to obtain a full understanding of the invention:

I claim:

1. A dead bolt device comprising; a door frame mounted supporting plate assembly having means to secure said assembly on a door frame, said supporting plate assembly including a first plate and a second plate, said first plate having at least one channel means, a slidable member in at least one channel means where said slidable member is movable from an unlocked position to a locked position, and a locking means to lock said slidable member in the unlocked position or the locked position, said means to secure the supporting plate includes a first means extending from said supporting plate assembly through a door frame, and fastening means which fasten to said first means, said first means being threaded bolts and said fastening means are threaded nuts, a backing plate means having apertures to receive said threaded bolts aligned with said dead bolt device on the opposite side of the door frame before the threaded nuts are applied, said at least one channel means includes an abutment means, and said slidable member includes a projection to engage said abutment means, said first plate includes a second channel means in which said locking means is vertically slidable, said locking means includes a projection on said locking plate and a mating notch on said slidable bolt plate for locking said slidable bolt plate in an unlocked position, said locking means including a notched area for engaging the back edge of said slidable bolt plate, locking it in a locked position, said slidable bolt plate having a protruding operating handle and said locking means having a protruding hand grip.

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United States Patent

Odend'hal et al.

[15] 3,652,113

[45] Mar. 28, 1972

[54] DOOR LATCH ASSEMBLY WITH PUSHBUTTON ACTUATION

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[22] Filed: Aug. 25, 1969

[21] Appl. No.: 852,678

[52] U.S. CL.: 292/216, 292/92, 292/210,
292/227, 292/DIG. 37, 292/DIG. 65, 292/DIG. 71,
70/DIG. 57

[51] Int. Cl.: E05c 3/26

[58] Field of Search: 292/92, 93, 198, 210, 214,
292/216, 227, 229, DIG. 37; 248/203; 70/229-232,
DIG. 57, 92

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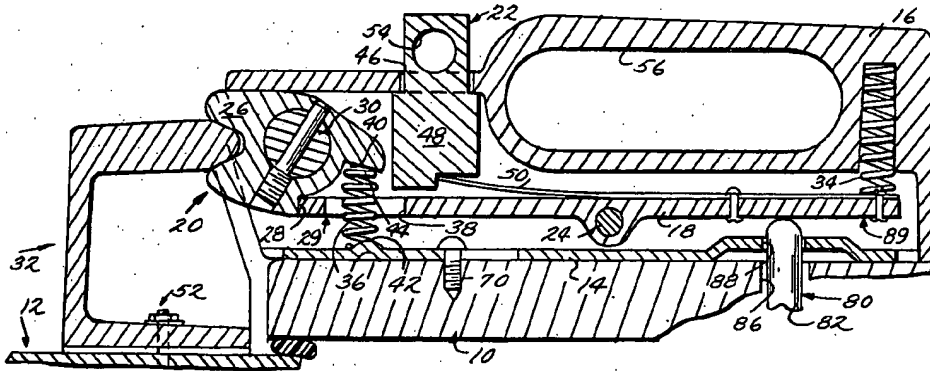
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[57]

ABSTRACT

A door latch assembly is provided with a pushbutton actuation to release a lever plate from a pawl so that a door can be opened by free rotation of the pawl relative to a keeper. The lever plate is pivotally mounted within a housing which is secured with a base plate to the surface of the door, and the lever plate is normally urged into latching engagement with the pawl. The pushbutton contacts one end of the lever plate so as to move it out of engagement with the pawl. A separate releasing means, operable from an opposite side of the door from the position of the pushbutton means, contacts an opposite end of the lever plate so as to release the lever plate from the pawl without affecting the position of the pushbutton means. Thus, it is possible to release the door from the inside of a room even if the pushbutton means has been locked in a fixed position.

9 Claims, 6 Drawing Figures



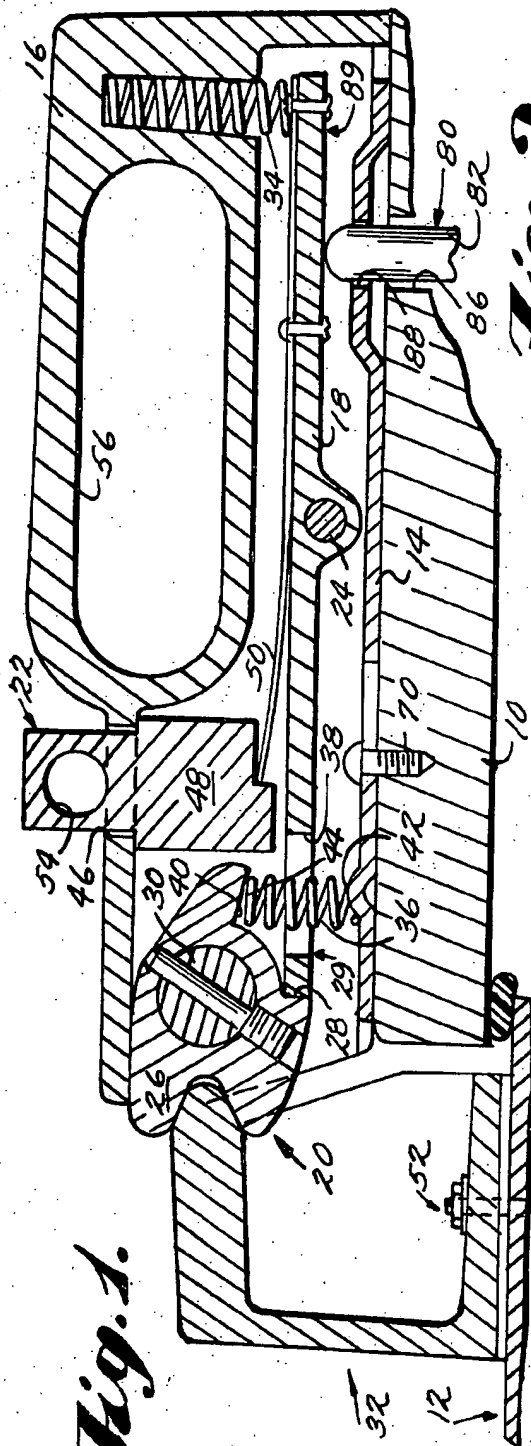
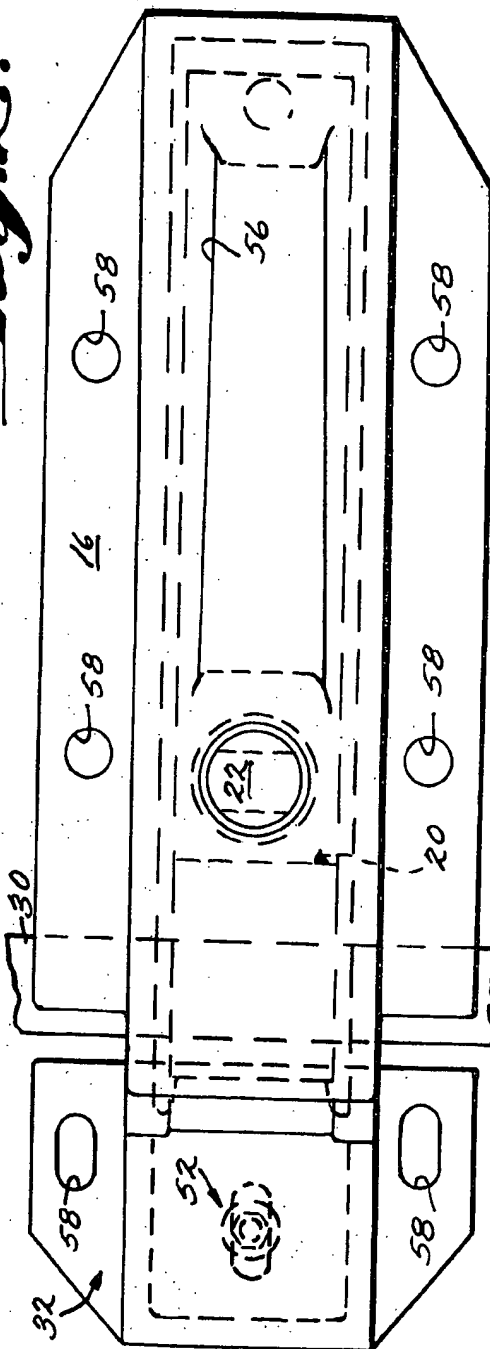


Fig. 1.

Fig. 2.



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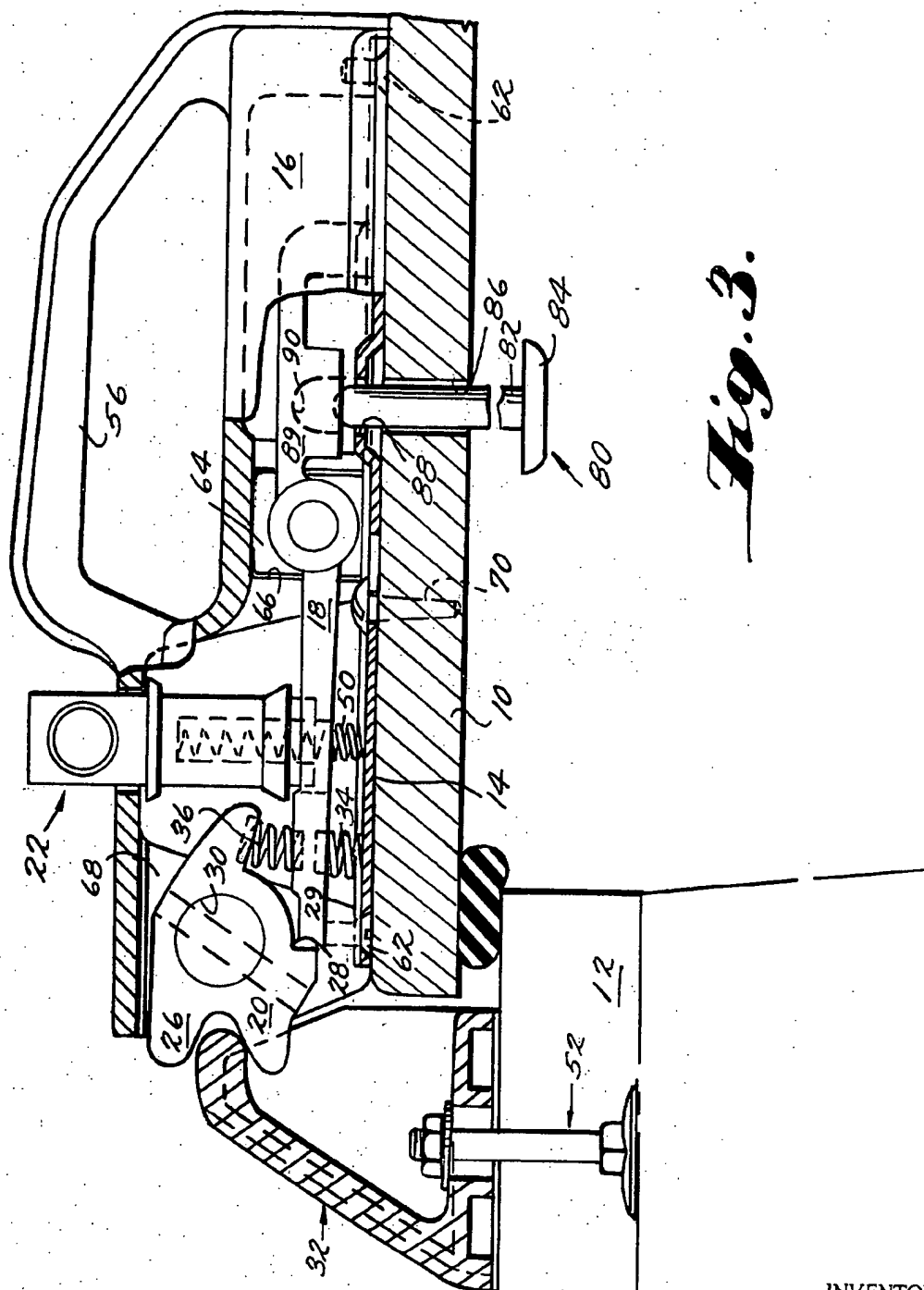
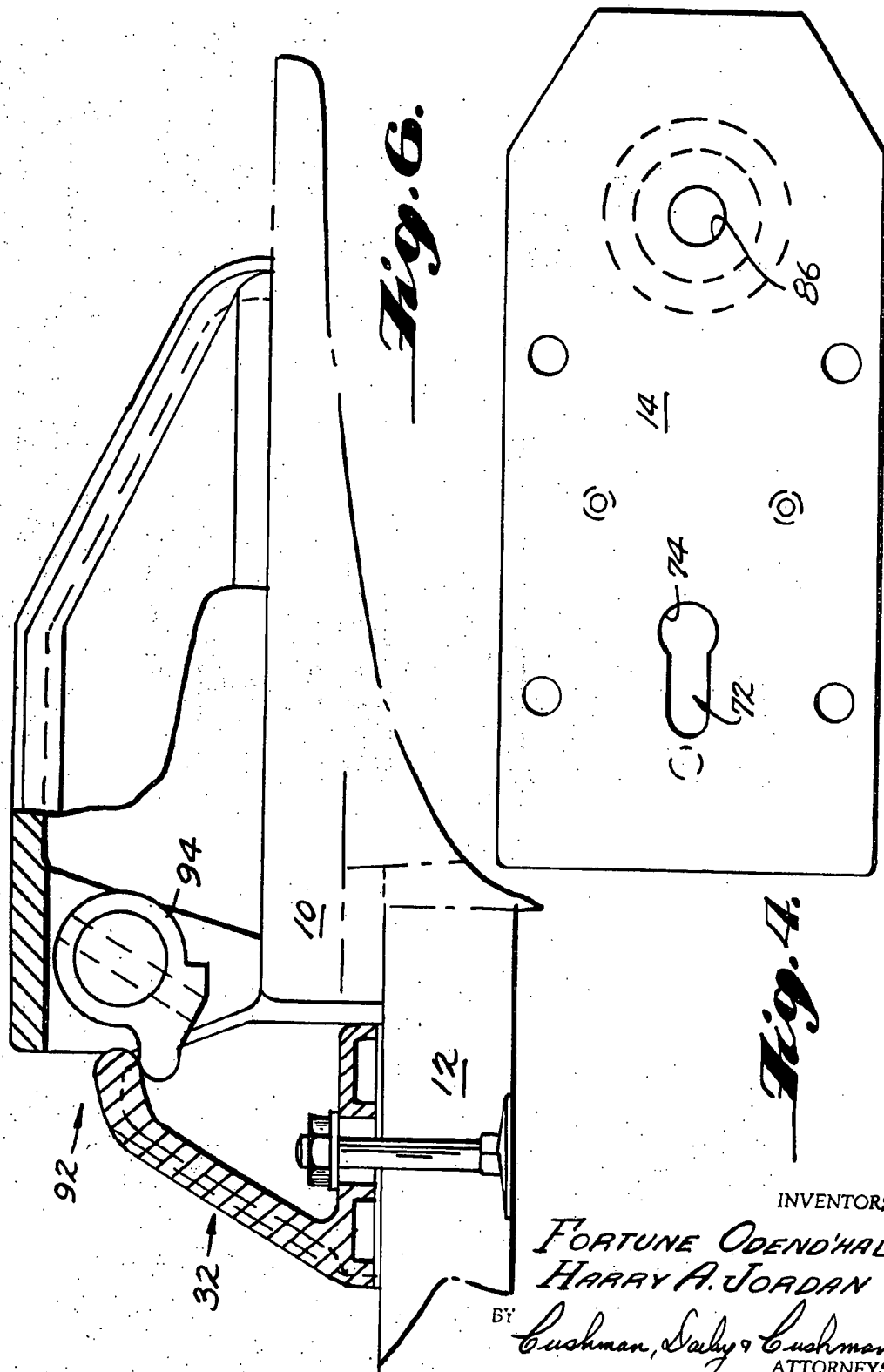


Fig. 3.

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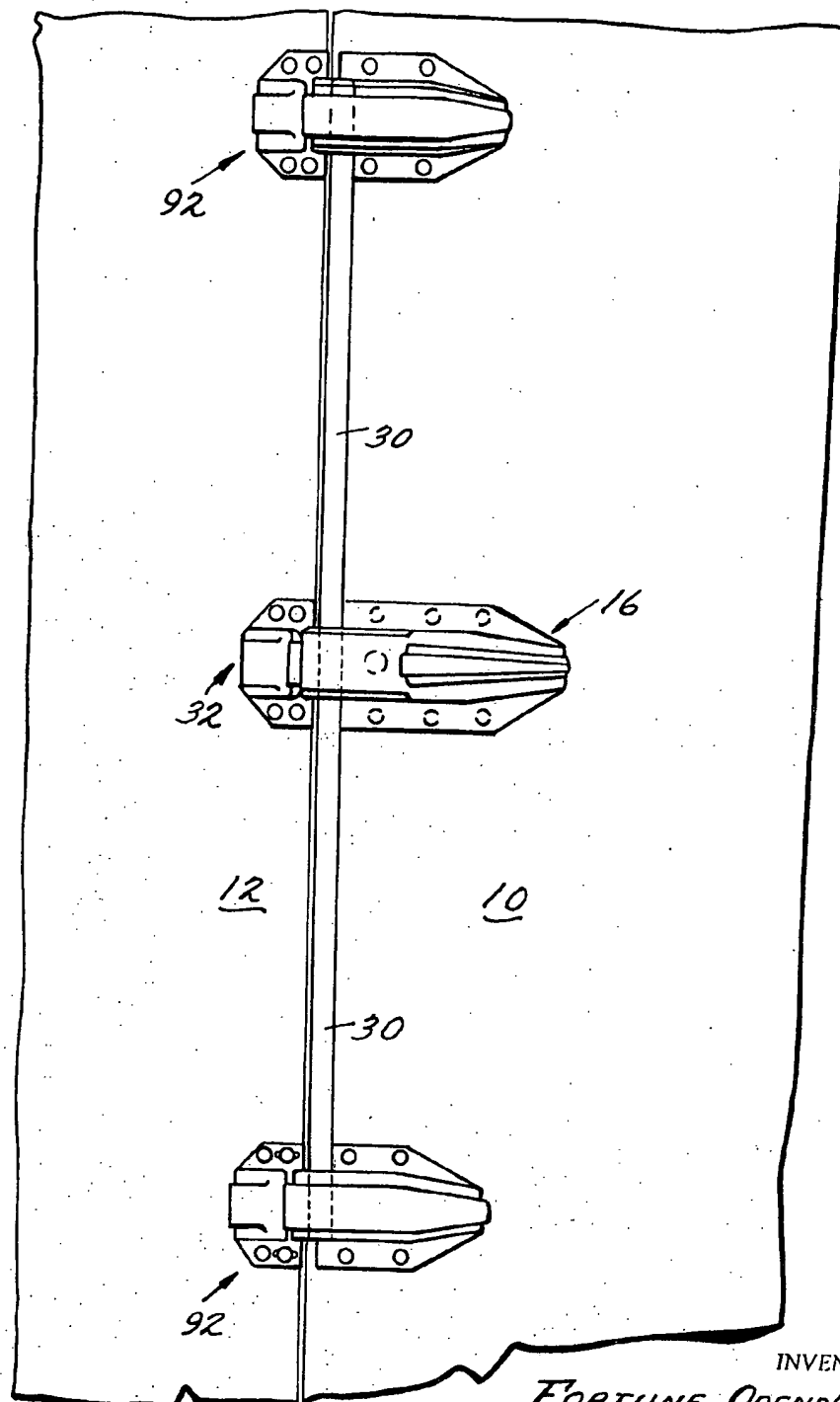


Fig. 5.

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DOOR LATCH ASSEMBLY WITH PUSHBUTTON ACTUATION

BACKGROUND AND BRIEF DESCRIPTION OF INVENTION

This invention relates to an improved door latch assembly for use in latching and locking a door relative to a doorway. More specifically, the invention is concerned with a door latch assembly which can be latched and locked from one side of a door and released from an opposite side of the door.

It is known in this art to provide various types of latching devices which can be secured to a portion of a door for engaging a keeper, or similar structure, carried on the frame or wall adjacent to the door. Such assemblies have considered various arrangements for causing the door to be latched and fixed in its position once it is closed, and provisions have been made for locking the assembly to prevent an opening of the door from its closed position. Also, it is known in this art to provide for structures which allow for a release of a locked door from inside of a room, such as a refrigeration room or storage area. The capability of releasing a locked door from within a room is important where there is a possibility of accidental locking of a door while an individual is within a room sealed by the door. Representative structures of the general type contemplated by this invention are shown in U.S. Pat. Nos. 219,485; 435,109; 1,676,515; 2,012,732; 2,163,957; 2,464,178; 2,655,395; 2,893,772; 3,149,867; and 3,223,441.

In accordance with the present invention, an improved assembly is provided for latching and locking a door from one side while permitting a release of the door from an opposite side. The improved assembly is tamper proof because it is fastened to the surface of a door with fastening devices that are fully concealed. In addition, the simplicity of its design and structure provide for a very strong assembly which is easily manufactured at a reasonable cost.

The improved door latch assembly is provided with a pushbutton for releasing the assembly from a latched condition. The pushbutton is actuated with very little force because no linkages or other connecting devices are moved by the pushbutton to cause an unlatching of the door. Instead, the pushbutton merely operates a lever plate which is easily moved out of engagement with a pawl means so as to completely release the pawl means for free rotation about an axis. When the door is closed to a latched position, the lever plate is normally urged back into engagement with the pawl means, and the pawl means fixes the position of the door relative to a keeper secured to an adjacent frame or wall. A separate releasing mechanism is provided from an opposite side of the door and functions to move the lever plate out of engagement relative to the pawl means without requiring any movement of the pushbutton. Thus, the pushbutton can be provided with a locking device, such as a padlock, to prevent its actuation from one side of the door, and the door still can be released from an opposite side by the separate releasing means.

The constructional features of the door latch assembly of this invention include a base plate and a housing which are secured together in such a way that they cannot be disassembled once the door latch is in place on the surface of a door. The base plate is attached to a surface of a door without any requirement for reconstructing the door itself, and attachment is made with concealed fastening devices. A lever plate is mounted for rocking movement about a fixed pivotal axis within the housing, and a pawl means is also mounted for rocking movement about a fixed axis relative to the housing. The pawl means includes a latching end portion, which extends out of an open end of the housing, together with a locking shoulder which can be engaged by one end of the lever plate to prevent rocking movement of the pawl means in one rotational direction about its axis. First spring means are provided for normally urging the lever plate in a direction which tends to maintain one end of the lever plate in contact with the locking shoulder of the pawl means, and a second spring means is positioned to normally urge the pawl means in a rota-

tional direction which assists in maintaining a locked relationship between the lever plate and the pawl means. A pushbutton is mounted through the housing for movement towards and away from the lever plate so that when the pushbutton is pushed towards the door the lever plate is moved out of locking engagement with the pawl means. This permits free rocking rotation of the pawl means about its axis, and the door can be opened by merely pulling it outwardly away from the doorway which is being closed or sealed. Outward movement of the door allows the pawl means to rotate into an unlatched position relative to the keeper. Finally, there is provided a releasing means which is mounted through the door and through the base plate so as to engage the lever plate in such a way that the lever plate can be moved out of engagement with the pawl without moving the pushbutton. The pawl may be mounted on a vertically disposed rod or shaft which extends all the way through the housing and which can be connected to one or more additional pawls in separate latches. In this way, locking of a main latching assembly will maintain separate pawls of much simpler assemblies in locking engagement.

The latching assembly of this invention is useful for various types of doors. For example, it is especially useful for refrigerator room doors or relatively large doors of storerooms which must be latched and locked to close off one area from adjoining areas. It is important to provide for a release of such doors in the event that an individual becomes locked into a room by accident, and it is likewise important to provide for a strong structure which prevents tampering and disassembly of the mechanism from outside of the room or area which is being sealed or protected.

These and other advantages of the present invention will become apparent in the more detailed discussion which follows, and in that discussion reference will be made to the accompanying drawings as briefly described below.

BRIEF DESCRIPTION OF DRAWINGS

FIG. 1 is a cross-sectional view, taken on a horizontal plane, of one embodiment of structure for the latching assembly of the present invention, as installed on a door;

FIG. 2 is a side elevational view of the assembly of FIG. 1;

FIG. 3 is a view similar to FIG. 1, showing a second embodiment of structure for the assembly of this invention;

FIG. 4 is an elevational view, corresponding to the position shown in FIG. 2, of a base plate element for the assembly;

FIG. 5 is an elevational view of a typical installation which includes a main latching assembly, which can be locked, and two separate latching assemblies of simpler construction than the main assembly; and

FIG. 6 is a cross-sectional view, similar to the view of FIG. 1, showing the simpler construction of additional latching assemblies which may be used with the main latching assembly of this invention.

DETAILED DESCRIPTION OF INVENTION

FIGS. 1 and 2 illustrate a first embodiment of the door latch assembly of this invention. As shown in FIG. 1, the entire assembly can be mounted on door and wall surfaces without any requirement for mortising or reconstruction of a door or wall. A door 10 is shown in a closed position relative to a doorway 12. Of course, the door can be mounted in a number of ways in accordance with well known installation techniques, and the door may be sealed relative to the frame or wall portion around the doorway, as would be required for an installation in a refrigerated room.

The assembly of FIGS. 1 and 2 is made up of relatively few components which are easily manufactured and assembled and which offer an extremely rugged construction for doors which must be securely locked. The door latch assembly includes a base plate 14 (further illustrated in FIG. 4) and a housing 16. The base plate is secured to the housing in such a way that essential securing elements are concealed from view

and from access once the assembly is installed on the surface of a door. Typical securing arrangements will be discussed with reference to the second embodiment illustrated in FIG. 3. Several working elements are contained within the housing 16 and include a lever plate 18, a pawl means 20, and a pushbutton 22.

The lever plate 18 is in the form of a plate or similar member which can be mounted on a fixed, vertical axis shaft 24 for rocking movement about the vertically disposed axis. The pawl means 20 is formed to have a latching end 26 extending through an open end of the housing 16 and a locking shoulder 28 contained within the housing for engaging a first end 29 of the lever plate 18. The pawl means is mounted on a shaft or rod 30 for rocking rotational movements about a fixed, vertical axis. In the illustrated position, the pawl means is in a latching position for engaging a keeper 32, and the lever plate 18 is in a position to maintain the pawl means and the door in a closed, latched position. A first spring means 34 is positioned to normally urge the lever plate in a direction of rotational movement which will cause the first end 29 of the lever plate to engage the shoulder 28 of the pawl. In a similar fashion, the pawl means 20 is urged into such engagement by a second spring means 36. A bore 38 is formed through the lever plate 18 so that the second spring means 36 can extend between a shoulder 40 of the pawl and a portion of the base plate 14. It can be seen that the base plate 14 is provided with a raised dimple 42 for fixing the position of the second spring means 36, and a similar dimple or projection 44 is provided on the shoulder 40 of the pawl means.

The pushbutton 22, of the FIG. 1 embodiment, is mounted to extend through a bore 46 in the housing 16. A reduced diameter portion of the pushbutton 22 extends outwardly from the housing, and a larger diameter portion 48 remains within the confines of the housing. The larger diameter portion 48 is of a sufficient size to limit outward movement of the pushbutton 22 through the bore 46. A third spring means, which is illustrated as being in the form of a leaf spring 50, is positioned to normally urge the pushbutton 22 outwardly from the housing. It can be seen that the third spring 50 is riveted to the lever plate 18 and is normally flexed to maintain the pushbutton 22 out of engagement with the lever plate 18. The keeper 32 is secured to the door frame, or adjacent wall, by any suitable fastening device 52. The fastening device 52 can be placed in a position so that it is inaccessible and concealed once the assembly is installed and the door is latched. A transverse bore 54 is provided through the pushbutton 22 to receive a locking device to prevent inward movement of the pushbutton means. A padlock or similar arrangement can be inserted through the bore 54 so as to bear against outer surface portions of the housing and to prevent movement of the pushbutton means inwardly.

In operating the assembly shown in FIG. 1, it is only necessary to press the pushbutton means 22 with sufficient force to overcome the spring 50 so that the inner end of the pushbutton means 22 can contact the lever plate 18. Continued movement of the pushbutton means 22 causes the lever plate 18 to overcome the spring 34 and to rock about its pivotal mounting 24. Then, the first end of the lever plate is dislodged from engagement with the shoulder 28 of the pawl means 20. At this point, the pawl means 20 is free to rotate about its fixed axis, and thus, the door can be opened by merely pulling it outwardly so as to rotate the pawl means 20 in a counter-clockwise direction (as viewed in FIG. 1). A handle 56 may be formed into the housing structure 16 so that the door can be opened by pulling on the handle 56.

It can be appreciated that the operation of the latching assembly, as just described, is very simple with few moving parts and linkages. Movement of the pushbutton 22 is accomplished with very little force inasmuch as the pushbutton merely dislodges the lever plate 18 and does not actuate any separate linkages for moving the pawl means 20. The pawl means 20 rotates freely once the lever plate 18 is out of engagement with its shoulder 28, and no linkages or similar arrangements

are required to actuate the unlatching of the pawl means from the keeper 32.

FIG. 2 illustrates an outside view of the assembly. The housing 16 and the keeper 32 may be provided with openings 58 for receiving additional mounting screws. Such additional mounting screws function to correctly align the housing with the keeper once final adjustment is made. However, the basic mounting screws and bolts for the assembly are concealed from view when the assembly is installed.

The embodiment of FIG. 3 represents a slightly different construction for the latching assembly of this invention, but it can be seen that the concepts and principles involved are fully equivalent to what has been discussed for the FIG. 1 embodiment. The following discussion will also describe certain details which were not included in the FIG. 1 discussion, and it is to be understood that the FIG. 1 assembly may be constructed and assembled in accordance with any of the additional information provided below.

The FIG. 3 embodiment includes the same basic elements and relationships as discussed for FIG. 1. A base plate 14 is secured to a housing 16 by screws 62 which are concealed from view and access once the assembly is installed on a door. The housing 16 may be cast or formed in any well known manner so as to generally define a strong casing structure which can contain all working elements of the assembly within a hollow area of the housing. One end of the housing is provided with an opening so that the latching end 26 of the pawl means 20 can project outwardly from the housing and engage a portion of a keeper 32. Threaded borings are provided in solid portions of the housing to receive the screws 62, and thus, the base plate 14 can be secured to the housing once all of the working elements are in place.

The working elements are assembled into place very easily prior to attachment of the base plate 14 to the housing 16. The lever plate 18 is fixed to a shaft 24, and the shaft 24 is supported by small bearing blocks 64. Recesses 66 are molded into side walls of the housing interior to receive the bearing blocks 64 at each end of the shaft 24, and this permits a very easy assembly of the lever plate 18 into the housing structure. Also, the provision of bearing blocks 64 eliminates any requirement for drilling or boring openings through the housing itself for supporting the shaft 24, and there is no requirement to form the shaft 24 from a finished material which would be exposed to view on the outside surfaces of the housing 16.

The pawl means 20 is supported on a rod or shaft 30 which extends through aligned openings formed through opposite side walls of the housing 16. The pawl means 20 is secured to the shaft in such a way that rotation of the pawl means will cause the shaft to rotate about a fixed axis which is vertically disposed relative to a door. The pawl means 20 is of such a size that the inner side wall surfaces 68 of the housing can function as bearing surfaces for the pawl means.

In the FIG. 3 embodiment, first spring means 34 and second spring means 36 are disposed in alignment with each other on opposite surfaces of the lever plate 18. The lever plate is provided with recesses for receiving and fixing the positions of the two springs, and it can be seen that these springs function in a fully equivalent way to the springs discussed in the FIG. 1 embodiment. In addition, the third spring 50 is shown in the form of a coiled spring which is received into a relatively deep recess formed into the interior end of the pushbutton 22. The lever plate 18 is provided with a boring so that the spring 50 can pass through the lever plate and bear against the base plate 14.

Once the working components are in place, the base plate 14 can be secured to the housing 16 by the screws 62. Then, the entire assembly can be attached to the surface of the door 10 by a relatively strong screw 70. The screw 70 is received into an elongate slot 72 (see FIG. 4) of the base plate 14. The elongate slot 72 is provided with an enlarged end portion 74 for receiving the head of the screw 70 after the screw 70 has been secured into the surface of the door 10. When the head is

received into the enlarged end of the slot 72, the entire assembly can be slid to secure the assembly to the surface door. In this way, the assembly is attached to the door by a completely concealed and inaccessible fastening device which cannot be tampered with and removed. The elongate slot 72 may be arranged so that after the assembly is slid into an attached position relative to a door, it would be impossible to slide the assembly in an opposite direction when the door is in a latched position. The keeper 32 is also secured in such a way that its fastening device 52 is inaccessible once the door is closed. The keeper 32 may be in the form illustrated or it may be of a two piece adjustable construction of the type shown in U.S. Pat. Nos. 3,149,867 and 3,223,441.

In both the FIG. 1 and FIG. 3 embodiments, a separate releasing means 80 is provided for unlatching the door from inside of a room or area which is being secured by the door. This feature, by itself, is known in this art, but it is an important feature to the type of construction presented by the present invention. The separate releasing means 80 comprises a rod 82 with a head portion 84. A bore 86 through the door 10 allows passage of the rod through the door and into the interior of the door latch assembly. A hole 88 is provided in the base plate 14 so that an end of the rod 82 can pass into the housing 16 to contact a second end 89 of the lever plate 18. In the FIG. 1 arrangement, the separate releasing means 80 merely contacts a surface of the lever plate 18 to cause the lever plate to rock about its vertical axis and to dislodge from engagement with the pawl means 20. This movement is accomplished without any movement of the pushbutton 22, and thus, the pushbutton can be locked with a padlock from the outside and the door can be unlatched from the inside. In the FIG. 3 embodiment, the separate releasing means 80 is received into a recess 90 formed into the lever plate 18. Dislodgement of the lever plate from a locking engagement with the pawl means 20 is accomplished by pressing the separate releasing means 80 towards the door.

FIG. 5 illustrates a typical installation wherein the door latch assembly of this invention is shown at a midpoint position on a door and doorway. In addition, two separate latching assemblies 92 of much simpler construction, are shown at upper and lower positions relative to the main assembly. The separate assemblies 92 function to provide additional latching securement and alignment of a relatively large door. As illustrated, the rod or shaft 30, which carries the pawl means 20 of the main latch assembly, extends upwardly and downwardly for a sufficient distance to carry separate pawl means in each of the simpler assemblies 92. Thus, rotation of the main pawl means causes the other two pawl means to rotate an identical amount about an axis which is common to the axis of the main pawl means 20. Also, a locking of the main latch assembly so as to prevent rotation of the main pawl means 20 will prevent rotation of the pawl means carried in the separate latching assemblies 92 because they are fixed to the same rod or shaft 30 as is the main pawl means 20. FIG. 6 illustrates the simplified construction which can be used for the upper and lower assemblies 92, and it can be seen that such a construction is even more economical to produce than the main latch assembly discussed with reference to FIGS. 1 and 3. However, the additional assemblies 92 assist in a secure latching of a door relative to a doorway without a need for separate padlocks or securing devices. The separate pawls 94 contained within each of the separate assemblies 92 are shown as being secured to the extended shaft 30, and a locking of the rotational position of the shaft 30 by the main assembly will prevent a rotation of the separate pawl means 94.

It can be seen that the latching assembly of this invention provides for a very simple and strong construction which is tamper proof and which provides for a safety release from inside of a room. In addition, the structure of the main door latch assembly is such that additional assemblies, of simpler construction, can be simultaneously actuated and locked with the main door latch assembly. The entire construction is made from any suitable metal material, and plastics can be substituted for certain portions of the assembly where desired.

What is claimed is:

1. An improved door latch assembly which is useful for latching and locking a door relative to a doorway and which can be unlatched from one side of the door even when a lock is applied to an opposite side of the door, comprising the combination of:

a base plate which can be attached to a surface of a door, a housing secured to said base plate by securing means which are concealed when said base plate is attached to the surface of the door,

a lever plate mounted for rocking movement about a fixed pivotal axis which is substantially parallel to a surface of the door, said lever plate being completely enclosed within said housing,

a pawl means mounted for rocking movement about a fixed pivotal axis within said housing, said pawl means having (a) a latching end which extends out of an open end of the housing, and (b) a locking shoulder which can be engaged by a first end of said lever plate to prevent rocking movement of the pawl means in one direction about its pivotal axis,

first spring means for normally urging the lever plate in a direction which will cause the first end of the lever plate to contact the locking shoulder of said pawl means so as to prevent rocking movement of the pawl means in one rotational direction about its fixed pivotal axis, said first spring means extending between a portion of said base plate and a back surface of said lever plate,

a second spring means for normally urging said pawl means in a direction which maintains the locking shoulder of the pawl means in engagement with said first end of the lever plate, said second spring means extending between a front surface of said lever plate and a portion of said pawl means,

a pushbutton means mounted to extend through said housing for movement towards and away from said lever plate, said pushbutton means being positioned to contact said lever plate and to release the end of the lever plate from its engagement with the locking shoulder of the pawl means when the pushbutton means is pushed towards the surface of the door on which the housing and base plate are secured, whereby said pawl is released by merely pressing said pushbutton means,

a keeper means mounted on a wall or door frame adjacent to the position of said housing and base plate so that the latching end of said pawl means engages the keeper means in a latching relationship when the door is in a closed position relative to a doorway, and

a releasing means mounted through the door and said base plate so as to engage a portion of said lever plate, said releasing means being operable from an opposite side of the door from which said housing and base plate are mounted, and said releasing means being positioned to contact said lever plate to move said lever plate out of engagement with said pawl means without moving said pushbutton means.

2. An improved door latch assembly which is useful for latching and locking a door relative to a doorway and which can be unlatched from one side of the door even when a lock is applied to an opposite side of the door, comprising the combination of:

a base plate which can be attached to a surface of a door, a housing secured to said base plate by securing means which are concealed when said base plate is attached to the surface of the door,

a lever plate mounted for rocking movement about a fixed pivotal axis which is substantially parallel to a surface of the door, said lever plate being completely enclosed within said housing,

a pawl means mounted for rocking movement about a fixed pivotal axis within said housing, said pawl means having (a) a latching end which extends out of an open end of the housing, and (b) a locking shoulder which can be engaged by a first end of said lever plate to prevent rocking

movement of the pawl means in one direction about its pivotal axis,
 first spring means for normally urging the lever plate in a direction which will cause the first end of the lever plate to contact the locking shoulder of said pawl means so as to prevent rocking movement of the pawl means in one rotational direction about its fixed pivotal axis,
 a second spring means for normally urging said pawl means in a direction which maintains the locking shoulder of the pawl means in engagement with said first end of the lever plate,
 a pushbutton means mounted to extend through said housing for movement towards and away from said lever plate, said pushbutton means being positioned to contact said lever plate and to release the end of the lever plate from its engagement with the locking shoulder of the pawl means when the pushbutton means is pushed towards the surface of the door on which the housing and base plate are secured, whereby said pawl is released by merely pressing said pushbutton means, said pushbutton means having a bore formed transversely therethrough for receiving a locking device which prevents movement of the push button means towards the lever plate,
 a third spring means interposed between said pushbutton means and said lever plate so as to normally urge said pushbutton means outwardly away from said lever plate,
 a keeper means mounted on a wall or door frame adjacent to the position of said housing and base plate so that the latching end of said pawl means engages the keeper means in a latching relationship when the door is in a closed position relative to a doorway, and
 a releasing means mounted through the door and said base plate so as to engage a portion of said lever plate, said releasing means being operable from an opposite side of the door from which said housing and base plate are

mounted, and said releasing means being positioned to contact said lever plate to move said lever plate out of engagement with said pawl means without moving said pushbutton means.

3. The improvement of claim 1 wherein said pushbutton means includes a bore formed transversely therethrough for receiving a locking device which prevents movement of the pushbutton means towards said lever plate.

4. The improvement of claim 1 wherein said base plate includes a slot therethrough which is enlarged at one end so as to receive the head of a fastening element, whereby said base plate and housing can be attached to a flat surface by a fastening means which is concealed and inaccessible once the base plate and housing are attached to the flat surface.

5. The improvement of claim 1 wherein the lever plate is mounted into said housing by a pin means which is secured to the lever plate and which is carried by removable bearing elements fitted into recesses formed into interior surfaces of the housing, whereby no borings through the housing are required for assembling and receiving the pin means.

6. The improvement of claim 1 wherein said releasing means is mounted to contact a second end portion of said lever plate so as to move the second end portion of the lever plate outwardly away from the base plate.

7. The improvement of claim 1 wherein said housing has a fixed handle means formed onto its outer surface.

8. The improvement of claim 1 wherein said pawl means is fixed to a vertically disposed shaft which passes through said housing to permit rocking movement of the pawl means about said pivotal axis.

9. The improvement of claim 1 wherein said vertically disposed shaft extends to at least one additional latching assembly which also includes a pawl means which can be rocked relative to a keeper.

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[54] DOOR SECURITY GUARD

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[51] Int. Cl.² E05C 5/04

[52] U.S. Cl. 292/206; 292/251;
292/DIG. 65

[58] Field of Search 292/202, 206, 251, 100,
292/58, DIG. 65

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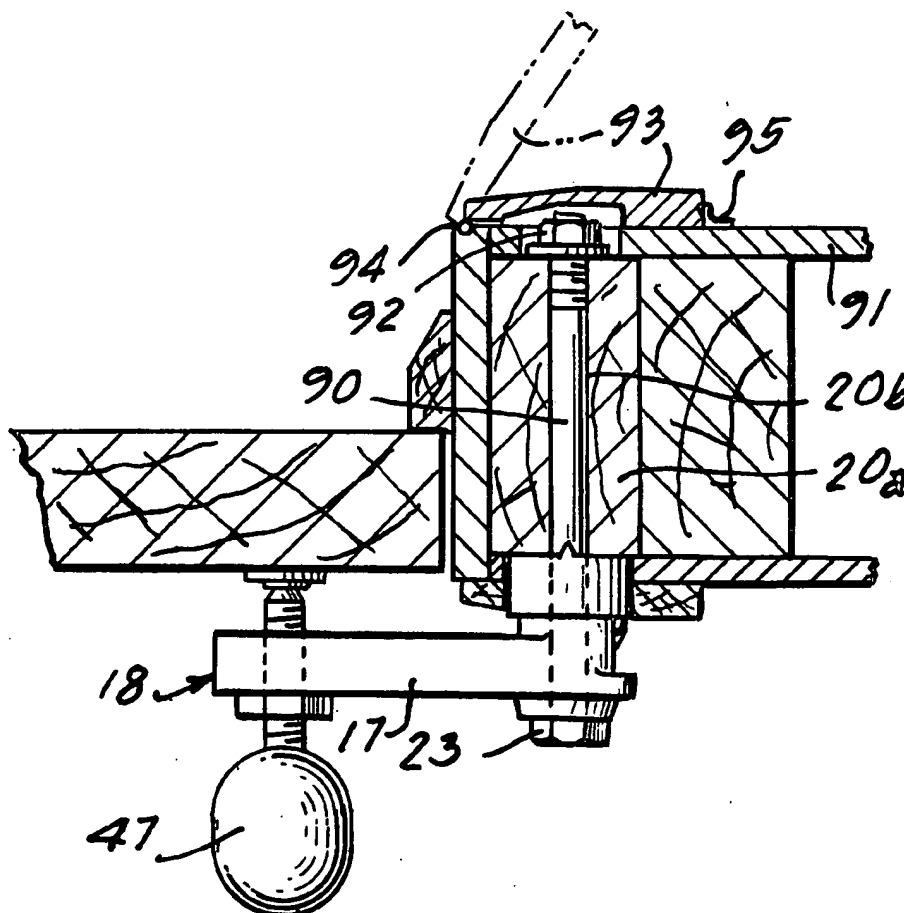
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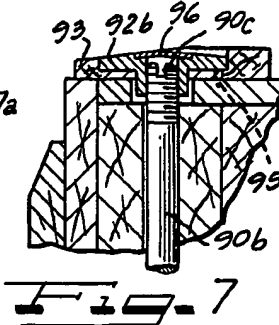
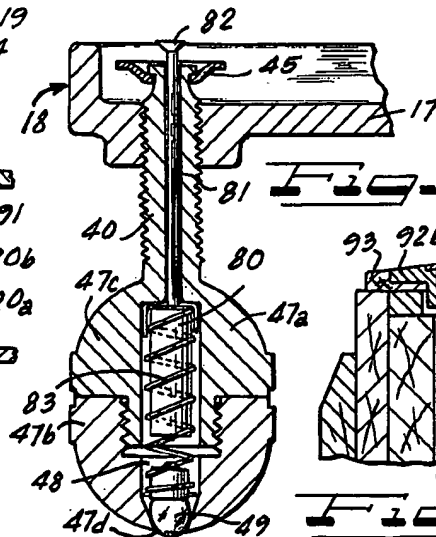
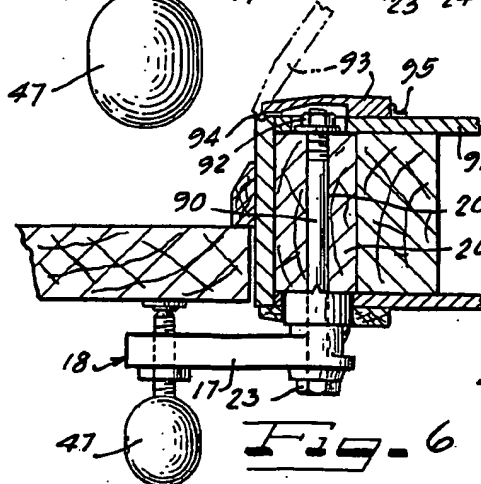
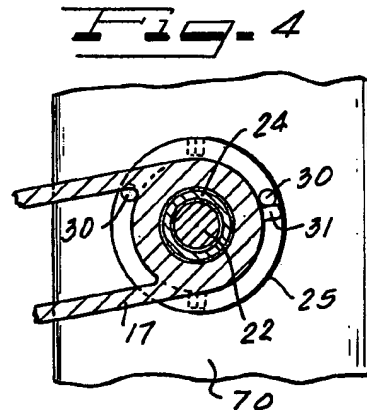
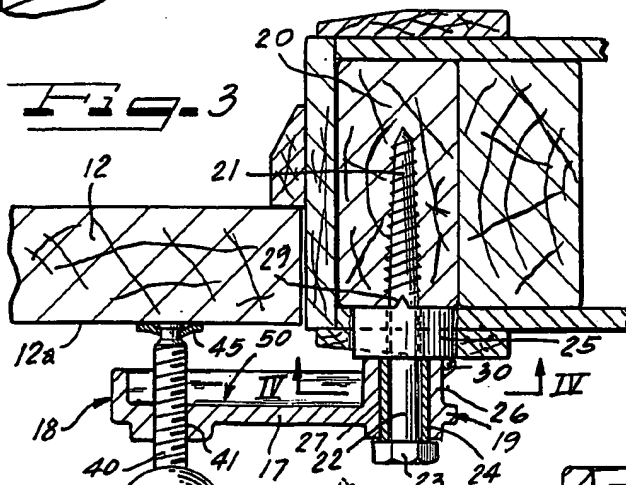
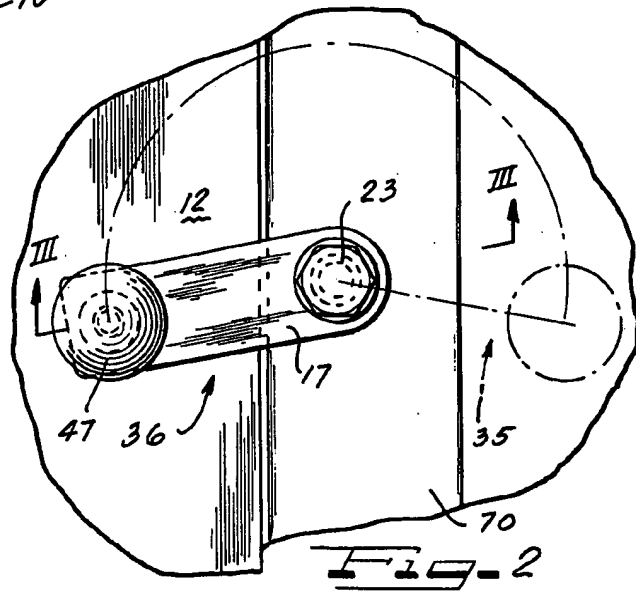
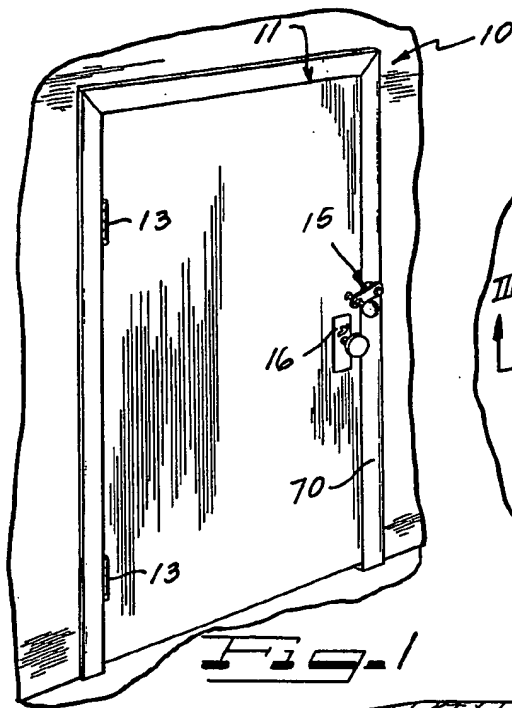
Primary Examiner—Richard E. Moore
Attorney, Agent, or Firm—Hill, Gross, Simpson, Van
Santen, Steadman, Chiara & Simpson

[57] ABSTRACT

A door security latch is disclosed including a link member pivotably attached to the door frame on the inside of the door and which is swingable to a position overlapping the inside face of the door. The link carries a threaded stop having a door face engageable portion which can be screwed into abutment with the door face.

2 Claims, 7 Drawing Figures





DOOR SECURITY GUARD

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to security devices and more particularly to a mechanical door latch.

2. Prior Art

Door securing devices commonly in use include locks, slide bolts, slide chains, and the like. Although locks, particularly of the bolt action type, provide a measure of security, they are ineffective in any public use areas such as hotels and motels where the establishment must have a master key. The mere existence of a master key, or duplicate keys, creates the possibility of a copy of the copy falling into inappropriate hands.

Slide bolts, as presently used, do not provide a significant measure of protection, first, because they are generally relatively flimsy, second, because they are screwed into the door which does not provide a firm base and third, because over the years they will become misaligned and become difficult or impossible to activate. Further, their use is not favored in public use buildings such as hotels and motels because they may be difficult to operate thereby providing a fire hazard and because such establishments must allow for the possibility of emergency entry into the locked room from the outside without major damage. Chain locks provide more of a psychological than a physical deterrent. Anybody having access to a master or duplicate key will find a chain lock to present no barrier since, even if it cannot be worked from the exterior with the door partially opened, it can easily and quietly be cut.

In view of the above restrictions with known devices it has been suggested, in the past, to use other forms of hinged or swinging latch devices having a portion affixed to the door frame and a swing or slide portion extendable into an overlapping relationship with the door. These devices have generally required engagement with a door carried member thereby relying in part upon the strength of the anchor to the door while further having the same misalignment problems discussed above in connection with slide bolts. Additionally provision has not been made in such prior devices for intentional disassembly from the outside when necessary.

It would therefore be an advance in the art to provide an improved security latch which is not dependent upon the strength of any mounting portion attached to the door, which is easily and quickly actuable, which does not require alignment of co-fitting parts and which, if necessary, can be deactivated from exterior of the locked room by methods which are not easily surreptitiously carried out.

SUMMARY OF THE INVENTION

My invention provides an improved security latch which, in its simplest embodiment consists of a lag bolt or screw firmly anchored in the timbers of the door frame and having a projection interior of the room to which a pivotable link is attached. Abutting stops between the link and a pivotable door frame attached portion limit the swing of the link between a disengaged and an engaged position. The link carries, on its free end, a threaded abutment member in opposition to the door. A handle on the room interior side of the link allows the door abutment end of the threaded portion to

be urged into pressing engagement with the inside face of the door. Thus, the door can be secured against its jam in a closed position in a manner which is mechanically stable. Release of the door requires only rotation of the handle to bring the abutment end out of engagement with the door and thereafter a swinging of the link to the non-latched position. Because this requires a rotating movement in rotating the handle, it cannot practically be accomplished from exterior of the room. Further, since the handle overlies the door on the interior, it is not accessible from exterior of the room.

The use of a threaded abutment member allows a single latch assembly to be manufactured for use in connection with the wide variety of door frames and doors including both flush fitting and interior projecting doors. By anchoring the lag screw deeply into the frame of the door, and by providing a strong link, a practically burglar proof latch system is provided.

For use in public places, such as motels and hotels, the lag screw can be substituted by a lag bolt which extends through the door frame and is accessible from the exterior of the room by removing a molding member providing access to nut or by disassembling a cap member to provide access to a slotted end of the bolt. In this manner, emergency access to the room can be had while requiring external disassembly which cannot easily be carried out in a public space without notice.

In a further embodiment, the threaded abutment member and handle may be equipped with a light source which is activated automatically when the latch is engaged so that the handle can be quickly and conveniently located in the dark in case an emergency exit from the room becomes necessary.

It is therefore an object of this invention to provide an improved door security latch.

It is another and more particular object of this invention to provide a door security latch which utilizes a pivotable member attached to the door frame including a link extending to a position overlying the inside face of the door, the link equipped with a threaded abutment member which can be brought into abutting engagement with the inside face of the door.

It is another, and particular, object of the invention to provide a door security latch having an inside pivotable link member attached to the door frame through a lag bolt with means exterior of the room closed by the door allowing disassembly of the latch but requiring disassembly of an external piece necessitating use of obvious tools.

It is another object of this invention to provide a door security latch system having a pivotable member affixed to the frame of the door pivotable to a door overlapping position with an abutment member movable into abutment with an inside face of the door when the pivotable member is pivoted to a door overlapping position, the abutment member including a handle, the handle having an internal light source activated by activation of the latch system.

Other objects, features and advantages of the invention will be readily apparent from the following description of a preferred embodiment thereof, taken in conjunction with the accompanying drawings, although variations and modifications may be effected without departing from the spirit and scope of the novel concepts of the disclosure, and in which:

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a door and doorway equipped with the latch device of this invention.

FIG. 2 is a fragmentary plan view of the door frame and a portion of the door of FIG. 1 illustrating movement of the latch system between engaged and disengaged positions.

FIG. 3 is a fragmentary cross-sectional view taken along the lines III—III of FIG. 2.

FIG. 4 is a fragmentary cross-sectional view taken along the lines IV—IV of FIG. 3.

FIG. 5 is an enlarged fragmentary cross-sectional view of the abutment end portion of the latch of this invention illustrating an embodiment equipped with a light source.

FIG. 6 is a fragmentary cross-sectional view similar to FIG. 3 illustrating a modified form of the invention.

FIG. 7 is a fragmentary cross-sectional view of the outside end of a modified lag bolt assembly for this invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG. 1 illustrates a doorway 10 including a framed door opening 11 closed by a door 12 attached to the frame by means of hinges 13. A security latch system 15 according to this invention is provided in addition to the normal door locks 16.

As best illustrated in FIG. 3, the security latch system includes a link member 17 having a free end 18 and an attachment end 19. The attachment end is attached to the door frame timbers 20 by means of a lag screw 21 having a projecting shaft 22 capped by a head 23. The attachment end 19 of the link 17 has a boss 26 with a bore 27 therethrough which receives the shaft projection 22. A sleeve 24 may be imposed between the boss bore and the shaft. A collar portion 25 extends between the frame timber 20 and the boss 26 and includes anti-rotation pins 29 embedded in the timber 20. The collar has spaced apart projections 30 which cooperate with a lug 31 on the boss to limit rotation of the link on the lag screw between a disengaged position 35 where the link fully overlies the building wall and an engaged position 36 where the link has its free end 18 overlying the door 12.

The free end of the link is equipped with a threaded member 40 having an abutment end 45 which is movable into engagement with the inside face 12a of the door 12 upon rotation of the threaded member. A handle 47 on the other side of the link 16 provides for rotation of the threaded member. If desired, a quick advance thread may be used between the threaded member and the threaded bore 41 of the free end 18 of the link so that minimal rotation of the handle 47 is necessary to advance the abutment end 45 into engagement with the door. Although a bulb handle 47 is illustrated, it is to be understood that other shapes could be relied upon.

Preferably the link has a door facing recess 50 into which the abutment end 45 can be withdrawn so that the abutment end will clear the door molding 70 when being swung between the positions 35 and 36.

In order to provide quick location of the security latch handle 47 in the dark, FIG. 5 illustrates a modification having a handle 47a constructed of threaded together pieces 47b and 47c both of which define a light receiving cavity 48 having a light 49 projecting from an

opening 47d in the portion 47b. A power source 80 is positioned within the cavity and is urged by a push rod 81 into engagement with the bulb 49 to activate the same. The push rod 81 extends through the threaded portion 40 and terminates in a tip 82 exterior of the abutment end 45 whereby the tip 82 will engage the door face 12a upon activation of the latch urging the power source 80 against spring 83 into contact with the light 49.

Although a battery light source is herein disclosed, it is to be understood that other methods of activating the light, including a built-in electric source, are contemplated. It is, however, preferable that the light be activated by engagement between the abutment face 45 and the door surface 12a so that the light will only be activated when the latch system is engaged. This both provides for location and provides an indication that the latch system has been effectively contacted with the door.

The above-described embodiment is particularly suitable for home use, private apartments or the like. FIGS. 6 and 7 illustrate modifications which are principally adapted for use in public facilities where the management may require an emergency means to deactivate the latch from the exterior without substantially harming the building. In the embodiments of FIGS. 6 and 7 the timber 20a is provided with a bore therethrough 20b and the lag screw 21 is changed to a lag bolt 90 which extends all the way through the timber 20a to the outside wall 91 of the room. The lag bolt can be capped with a standard nut and washer 92 which are buried behind the exterior door molding 93. Preferably the nut 92 will be located in a recess in the wall 91 so that it can be rotated only by means of a socket wrench. Additionally of course the nut may have a non-standard design requiring a special tool, not generally available to the public. If desired the molding 93 may be hinged as at 94 having a snap latch as at 95 to retain it in a closed position. Alternatively, the molding can be, as is common, semi-permanently attached to the wall by nails.

Thus, the embodiment of FIG. 6 can have the latch system disengaged by prying open the molding 93 and thereafter unscrewing the nut 92 by use of obvious tools which cannot easily be operated in secrecy in a public way such as the corridor of a hotel. The bolt can then be pushed through the hole 20b to drop the latch from the inside wall.

FIG. 7 illustrates a second embodiment of an outside disengageable latch. The lag bolt 90b is equipped with a tool receiving tip 90c which may require a screwdriver or the like for rotation. The nut 92b which maintains the bolt in position in the door frame is recessed into the molding 93b in a manner which prevents rotation of the nut 92, as by means of location fixing pins 95. The nut is closed by a cap member 96 which must be removed to gain access to the end of the bolt. The cap member 96, may for example, be soldered into the nut requiring application of high heat to remove it. Alternatively the cap 96 may be otherwise affixed to the nut in such a manner as to require the use of special tools for removal. Once the nut cap 96 is removed, the bolt can be rotated to disengage the nut allowing the bolt to then be passed through the bolt opening. Upon reassembly a few nut will have to be provided.

It can therefor be seen from the above that my invention provides an improved door security latch which includes a pivotable link member attached to the door frame and swingable between a position where no por-

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tion of the link overlies the door opening to a position where a free end of the link overlies the door opening. The free end is equipped with a door inside face abutment which can be threaded into pressed engagement with the door face. By tightening the threaded member, a mechanically secure latch is provided which cannot be overcome from exterior the door.

In various embodiments I have illustrated a rotation limiting means which maintains the latch, when in the engaged position, in an overcenter rotational angle position in such a manner that a link cannot drop out of the latched position. In other embodiments I have illustrated a light means illuminating the latch system when it is engaged. In yet other embodiments I have shown a latch system which can be intentionally disengaged from outside of the secured room but which disengagement requires the use of obvious tool and which may further require disassembly of either portions of the building construction or difficult to disassemble portions of the latch system.

Although the teachings of my invention have herein been discussed with reference to specific theories and embodiments, it is to be understood that these are by way of illustration only and that others may wish to utilize my invention in different designs or application.

I claim as my invention:

1. A door security latch comprising an attachment member for attachment of the latch to a door frame adjacent a door opening having a projecting portion adapted to project beyond the door frame, a link member having a free end and an attachment end, the attachment end pivotably attached to the projecting portion with the link pivotable in a plane substantially normal to the plane of projection of the projecting portion, the free end having a threaded connection to a threaded member, the threaded member having a longitudinal axis of projection substantially normal to the plane of pivotability of the link, the threaded member having one end thereof terminating in a door abutment face and a second end thereof, lying on a side of the link opposite the door abutment face terminating in an actuating handle, rotation of the actuating handle causing the abutment face to withdraw towards the link and to

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advance away from the link, and the link having a length sufficient to place the abutment face in opposition to an inside surface of a door closing said door opening, the handle means having a light carried thereby and means activating said light only when said abutment face is in engagement with said door surface.

2. A door security latch comprising an attachment member for attachment of the latch to a door frame adjacent a door opening having a projecting portion adapted to project beyond the door frame, a door frame having an inside and an outside, the projection lying on the inside of the door frame, a link member having a free end and an attachment end, the attachment end pivotably attached to the projecting portion with the link pivotable in a plane substantially normal to the plane of projection of the projecting portion, the free end having a threaded connection to a threaded member, the threaded member having a longitudinal axis substantially normal to the plane of pivotability of the link, the threaded member having one end thereof terminating in a door abutment face and a second end thereof, lying on a side of the link opposite the door abutment face, terminating in an actuating handle, rotation of the actuating handle causing the abutment face to withdraw towards the link and to advance away from the link, the link having a length sufficient to place the abutment face in opposition to an inside surface of a door closing said door opening, the attachment member extending through the door frame to adjacent an exterior wall surface of a wall in which the door frame is mounted, means engaging an end of the attachment member adjacent the exterior wall preventing withdrawal of the attachment member through to the wall to the interior of the door frame, said means being selectively disengageable to allow the attachment member to be released from said means whereby the attachment member can be freely pushed through the door frame to allow the door to be opened, cover means on the outside wall surface preventing access to the means, and one of the cover means and means engaging being structured requiring use of tools for a disengagement of the means engaging from the attachment member.

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UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 4,099,754
DATED : July 11, 1978
INVENTOR(S) : Robert J. Hoebing

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 1, line 15, for "existence" read --existence--.
Column 1, line 16, for "possibly" read --possibility--.
Column 1, line 51, for "actutable" read --actuatable--.
Column 2, line 1, for "presing" read --pressing--.
Column 2, line 24, for "disassembling" read
--disassembling--.
Column 2, line 67, for "th" read --the--.
Column 4, line 64, for "few" read --new--.

Signed and Sealed this

Nineteenth Day of February 1980

[SEAL]

Attest:

SIDNEY A. DIAMOND

Attesting Officer

Commissioner of Patents and Trademarks